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## NEWS IN BRIEF

## Quest buys CIL

QUEST Automation of Fern-down, Dorset has bought Computer Instrumentation from the US-owned University Computing Co. CIL, based at Chandler's Ford, Hunts manufacturing plant for customers that include Quest itself, which uses them in its Q-Draft family of computer aided drafting equipment.

## System X dispute

PICKETING continues at GEC Telecommunications at Stoke, Coventry where 250 System X development engineers have been locked out during negotiations on pay and working conditions. The men, members of ASTMS, believe that technology could cut their jobs by up to 30%.

## Threat to jobs

THE current lack of spending power threatens to cause more unemployment and problems than any introduction of new technology, says a report from the Amalgamated Union of Engineering Workers' Technical, Administrative and Supervisory Section, entitled A Guide For Negotiators.

## Sample EEPROMs

SAMPLE deliveries of Hitachi's 16K-bit EEPROM (electrically erasable programmable read only memory) are planned to start this month. Volume production is to start the third quarter of this year. The chip is designated HN48016 and has a maximum access time of 350ns.

# COMPUTER WEEKLY

## Turn UK into another California, says Sir Keith

AN ECONOMIC climate which will encourage successful high technology entrepreneurs to become venture capitalists must be established in the UK, according to Industry Secretary Sir Keith Joseph. At the opening of new London offices by the Leeds-based Systems Builders, Systime, Sir Keith said that the government is "trying to bring about a less hostile climate for business."

Sir Keith had obviously been impressed by his first meetings with venture capitalists on his recent trip to California. He said he was struck by how many of them in California were British and by how many were technologists who had turned themselves into financiers. In the UK such people are discouraged by taxation and low profit levels, he said, but he aims to turn the

UK into another California. Sir Keith also commented on the difficulty Systime had had in getting backing when it started. Although the fact that the money eventually came from the National Enterprise Board was "not exactly a delight for me," Sir Keith said, it was true that the merchant bankers in the City "did not understand the computer industry."

## 2900 services gap left by BOC is filled

FOLLOWING the decision by BOC Datasolve to drop out of the 2900 services business (CW, June 19) the bureau's VME/B contracts, mainly conversion jobs, have been taken over by two organisations — Computel of Bracknell, Berks and a new company in this field, Great Western Computing of Swindon, Wilts. But Datasolve is still

looking for a buyer for its ICL 2972 mainframe. Great Western uses W. H. Smith's ICL 2978 at Swindon to provide VME/B services for its clients and plans to open a customer centre in London in the autumn equipped with remote job entry and interactive terminals that will be used by customers to access the Swindon mainframe.

## CIG to get first Euro 8 mips Hitachi

THE first European customer for the eight million instructions per second Hitachi processor soon to be launched by National Advanced Systems is set to be Centre d'Informatique Générale, CIG, the Belgian owned computer services group that has just bought the Lowndes-Ajax bureau (CW, June 12).

CIG International director Daniel Van der Plasche told Computer Weekly that the 8 mips Hitachi machine would be installed at CIG's Brussels bureau centre later this year to replace an IBM 370/158. The increase in processing capacity would naturally be very considerable.

The 8 mips machine is a version of Hitachi's M200H process-

or and was originally going to be sold by Intel, which launched it as the AS/8-7034 last year (CW, July 19, 1979) not long before dropping out of the IBM compatible processor business.

Its relaunch by National was delayed because of the expected H Series launch by IBM. But National has decided to go ahead regardless (CW, June 12) a move which now seems safe in view of the life prolonging enhancements for the 303X processors just announced by IBM (CW, June 19).

CIG's plans for Lowndes-Ajax include making its services available to CIG customers on the Continent under CIG's own data communications network. Van der Plasche said that two of the bureau's services of particular interest were the Simplex corporate modelling system and a personnel management service based on the System 2000 database management system from MRL.

Because of Peter Merrick's departure earlier this year, one of Van der Plasche's first tasks was to find a new managing director. Nick Rowe, formerly European president of the American Express card division at Brighton, has been appointed. Rowe worked for ICT between 1964 and 1968 and then set up the Hoakyns operation in New York.

BUYERS are being sought for Abacus Computers, the London-based micro systems and peripheral distributor, where the receiver has been called in by its bank.

The company had reached the limit of its borrowing facility and majority shareholder John Kennedy, City financier and an Abacus director, was not prepared to extend his investment. Potential buyers have already been approached by receiver David Buchler & Co, where David Buchler said he was eager to hear from possible purchasers on 01-580 0784.

Abacus managing director Derek Rowe told Computer Weekly that a new backer had been sought for some time. Last

## Big losses on WP cause Wordstream closure

WORDSTREAM, the word processing operation of Management Assistance Inc in the US (MAI), is being closed down after running at losses of over \$10 million a year. MAI is concentrating its resources on linking data and word processing and is shortly introducing its Dataword II package for the Basic Four small business system into the UK.

Wordstream was a shared logic word processor using floppy discs instead of hard discs and this unusual configuration failed to catch on in the US although it did better in other countries such as West Germany. The company has decided the future lies in combining word and data processing, although it will continue to support Wordstream customers.

The package for the Basic Four, already launched in the US, will be called Dataword here. It requires the addition of special full page (A4) screens and a daisy wheel printer to the Basic Four VPP and DP can then be carried out simultaneously.

## Receiver called in at Abacus

November, Show Financial, a Texas-based holding company, was near to taking over (CW, November 1, 1979) but eventually decided against the investment. The group is a major

Abacus supplier. Abacus is said to be in a bad shape and it is understood could be bought for £50,000 plus sufficient to keep it going.

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## Briefing

### NEB places Ferranti stake

BOWING to pressure from Scottish MPs, the National Enterprise Board has abandoned its plans to sell its 50% stake in Ferranti to the highest bidder and has, instead, offered most of its holding for sale through a group of stockbrokers. The shares will be placed with institutions which must agree to hold them for two years, guaranteeing Ferranti a period of independence.

Some 400,000 shares are being retained for sale to Ferranti workers. The NEB paid £8.7 million for its stake and should raise £54 million from the sale.

See Company News, page 21.

### Nigerian coup

ICL has won an order worth £270,000 from the First Bank of Nigeria for 90 of its 1500 series terminals. They will be used for data capture and local processing in the bank's 30 branches in the Lagos and Ibadan areas and will transmit data to the bank's ICL 1901T and 1902T computers.

### Tank standard

FERRANTI'S F100-L 16-bit microprocessor and its family of support chips have been chosen as standard for use in processor-based subsystems in the British Army's planned main battle tank, of which 1,000 are to be built.

### Circuit lottery

A LOTTERY is to be held for the remaining circuits on an RCA satellite which is to be launched soon to replace the one lost earlier this year.

## Intel unveils high-level plans

INTEL's plans for the next three years, announced at the company's Fair at the Wembley Conference Centre last week, stress high-level languages, microcoded operating systems and large program sizes. Planned products, revealed in Computer Weekly last month (Micro News, June 19), include two new versions of the 8088 16-bit micro, and a 32-bit two-chip set.

The same kinds of software development problems which have hampered IBM are

hindering Intel's development effort, and although samples of the 32-bit IAPX 432 will be available at the end of the year, no software will be available until the end of next year.

The device will be programmed entirely in high-level languages, with the systems implementation language a superset of ADA, itself based on Pascal. Other planned languages are Cobol and Fortran and there will be no assembly language.

The two more powerful versions of the 8088 are the IAPX 186, offering a higher level of integration and lower cost, and the IAPX 286, offering much higher performance. Again only parts of the RMX-86 operating system are so far available.

Intel's move to put substantial parts of the IAPX 432 operating system into microcode threaten to lock users into Intel software in just the same way as users of IBM's large systems are locked into IBM software.

## Dol backs PAYE net test run

AS part of its efforts to persuade the government to apply its single tender policy to the Inland Revenue's huge PAYE project, ICL is carrying out simulation of a 1,000-terminal network on a big 2900 machine running under VME/B with IDMSX and the teleprocessing system, TPMS100.

First described in Computer Weekly early last year (CW, March 29, 1979), the PAYE scheme will ultimately involve more than a dozen large scale installations each supporting up to 1,400 terminals.

The simulation is part funded by the Department of Industry which strongly favours a single tender approach for the PAYE project. Not surprisingly, ICL's competitors like IBM, Burroughs and Honeywell want the contracts to go out to tender and from January next year the single tender policy should technically end under EEC rules. The simulation work is taking place at the West Midlands Gas computer centre at Solihull, Warwick, where 1,000 ter-

minals are being simulated by an ICL internal development tool called Communications Test Generator. The generator runs on dual processors which are work processors which are linked by simulated remote communications lines to the site's 2976 which is shared by ICL and West Midlands Gas.

For each terminal being simulated the generator can call on a variety of input message sequences, known as "scripts". These are stored on disc and include such factors as operator wait times which are continually modified.

## ICL staff vote to strike

STAFF at ICL have rejected the company's offer of 12% and voted overwhelmingly for a one-day strike today (Thursday) and a ban on overtime. About 20,000 are affected by the pay awards being negotiated and ASTMS claims a membership of 9,000, while others are members of APEX, TASS, ACTSS and EESA.

A further meeting of delegates from the unions is planned for next Monday to discuss escalating the action to include a ban on contract work and selective strikes. A £1 a head voluntary

levy has already been started to support the selective strikes. Tim Webb of ASTMS said: "This is our first national dispute with the company and we regret having to take this action particularly because ICL needs the support of its staff during the negotiations on the Internal Revenue contract."

An ICL statement said the company wanted to meet the negotiating committee to seek "any possible routes to reach a solution which will not prejudice the company's competitive position."

## IBM cuts 303X prices in UK

IBM has slashed 11% off 303X processor purchase and lease prices in the UK — but the parent company in the US has raised prices there right across the board.

The 11% cut in the UK covers all entry level 303X processor models and all models of the 3033. In the US, most mainframe prices rise 10% in October, and purchase and rental prices for most DP Division products rise

8% immediately, while General Systems Division prices rise 7%. The company gave no explanation for the UK cuts but blamed inflation for the rise in the US.

### 1,000 auto-tellers

NATIONAL Westminster's US Bank, New York-based National Bank of North America, is installing over 1,000 IBM counter and automatic teller terminals in its 187 branches.

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## Top men quit at Infoline

UPHEAVALS are continuing at Infoline, the online retrieval service rescued from financial collapse by Robert Maxwell's Pergamon Press (CW, June 19), with decisions to change the computer and bureau used, and probably the operating software as well, and the resignation of two senior staff. The switch to an IBM 4300 at Selcom from GSI's Univac 1100 is likely to mean the ditching of the Basis software, on which Infoline had spent a great deal of development effort.

Infoline director David Martin and marketing manager Jeremy Sergeant have both resigned, and may be followed by other staff. The advisability of switching machines and retrieval software was already being looked at. Alternative retrieval software packages now being considered are those already in use with Infoline's competitors: Dialog from Lockheed, Orbit from SDC, and IBM's own Basis. Basis, originally developed at Battelle Institute in the US, was found to have serious difficulties in handling the large files (two or three million records) that Infoline needs to provide. There is, however, an IBM version of Basis that could be used.

Details of the Pergamon takeover have still not been released, except that Pergamon is now the sole owner. The Department of Industry declined to comment on the fate of the £200,000 of public money invested in the project by the Dol and the British Library.

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Model

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our range?

## COMPUTERVIEW

IN its own way the agreement just made by ICL with the Office of Fair Trading to change some of its commercial practices may appear to resemble somewhat the consent decree imposed many years ago on IBM by the US government that regulates the ways in which the industry giant deals with its customers.

But the OFT has imposed no major changes on ICL's policies and allows the company to continue with practices that are nowhere near as restrictive as those which IBM is obliged to follow. The OFT agreement, in fact, strengthens rather than weakens ICL's position in relation to its customers and the suppliers of used ICL machines and plug compatible hardware because it gives ICL what appears to be official OFT approval for its policies as they now stand.

These policies still include ICL reserving the right to refuse to maintain a machine after as little as five years and to demand a compensatory levy or licence fee from a user who installs non-ICL memory or peripherals. The only significant concession squeezed out of ICL is an agreement to abolish the 20% maintenance surcharge on old ICL machines if ICL agrees to service them. Hardly worthy of mention is the reduction from 20% to 18% in the maximum levy on foreign equipment attachments.

But on the question of ICL's maintenance policies the

## Business as usual

OFT has admitted that it did not lightly reach its decision not to proceed with its investigations and on the matter of the levy the OFT has told ICL that the agreement just made should not be taken as an irrevocable acceptance of the principle of the licence fee. The company is warned that the agreement should not be regarded as precluding the possible use of the OFT's powers under the new Competition Act which is intended to strengthen its regulatory muscle.

So the OFT's main shortcoming in dealing with this case appears to have been a lack of understanding of the computer industry and computer technology rather than a lack of concern about the possible undesirability

of ICL's policies. In other words the OFT's fault lies inexperience rather than indifference.

But, the real reason for the failure to bring about major change in ICL's commercial practices is a lack of enthusiasm for the cause on the part of users. Some computer companies whose business has been adversely affected by the policies have done their utmost to persuade the OFT to really get tough with ICL, but in general have made very little fuss. Some timid attempts in the past by the ICL Computer Users Association to pressure ICL into changing its policies were strongly rebuffed by the company and about a year ago ICL told the CUA that it had no intention of changing any of its policies. However, another word was uttered publicly on the subject late last year when the OFT started to threaten ICL with the Competition Act (CW, September 13, 1979). It was obviously decided that its approach with the OFT should be diplomatic rather than heavily handed and its approach appears to have paid off.

It seems fairly clear that the two users who challenged ICL over its attachment policy, the British Union Insurance Group and Bradford Council, are an unusual independence of mind, and they could thus by subsequently changing their mainframes.

## LETTERS to the EDITOR

## Where do 'better' recruits come from?

I don't suppose I was the only person to be disappointed that the feature headed "Which People Make Best Recruits?" (Page Six, June 12), perpetuated the apparent ignorance about there being no degree courses in subjects related "to the requirements of the industry."

My own institution, The City University, is one of several universities and polytechnics which now offer DP specialist degrees (BSc in Data Processing Systems in our case) in addition to the longer established computer science degrees.

Higher education is now reasonably well staffed with individuals who have very respectable industrial backgrounds in terms of DP systems analysis experience.

The discussion around the question posed in your headline should have shown us the courtesy of asking whether graduates from the kind of degrees I've referred to will make "better" recruits to the DP industry. Even if you remained sceptical at least we'd have something specific to react to.

Sadly, I have to report that at present the national publicity about the need for trained people in the computing field seems to have stimulated dramatically the applications for admissions to computer science courses, while leaving the DP systems analysis area rather neglected by the bright and ambitious sixth formers.

## 1984 and all that...

THIS week's example of the strange things people say in the media about computers was sent in by Frank O'Shea of Rathfarnham, County Dublin, who writes:

"So what is a micro chip? It is a computer but scaled down so, minute chips can be slotted through the top of a machine, the trade name, Silicon chip, comes from the silicon in Silicon, California, where, in the 1960s, discovered the micro chip, bringing together, as many as 100,000 transistors and components, could be built on a single silicon, or micro, chip."

In a document on microchips published by the ASSE (see CWW, June 12) they say: "Microchips are

May I slip in a plea while I'm about it? Being very aware of the importance of practical experience in a vocational degree, many institutions insist on the industrial sandwich year (or something equivalent) being part of the degree course for students straight from school. Placing these students is not as easy as one might expect.

"We can't afford to take them at present." "We don't take

trainees". These answers are all too frequently the ones given by our forward-looking industry. Can I appeal to employers to look favourably on requests to find a place for such students as they represent the potential leaders of the future?

ALWYN JONES  
Senior Tutor  
City University Business School,  
London.

## Responsibility to the customer

I WAS pleased to read Philip Howell's defence of the hardware and software at the now infamous Driver and Vehicle Licensing Centre at Swansea and the CHAPS banking system project (Letters, March 27). It is not my intention to knock either project; in the former's case many have already done so and in the latter's many do not doubt will, however, like to make the following observation based on experience of the DVLC project.

This project was born in an age when giant computers were considered to be the panacea for cost-effective data processing. Centralisation of processing had to be achieved because prohibitive hardware costs rendered alternatives unacceptable.

The project was designed around the very latest hardware and software available at the time and, allowing for testing troubles associated with any new range of equipment, both have combined to give an acceptable level of service.

However, I do not think ICL's responsibility to its customer ends there. By any standards, this was/is a major ICL account (in fact a prestige account) and ICL's investment in supporting the account was in proportion to the customer's investment in ICL products.

The customer should have been the recipient of the finest professional advice and counsel that ICL could muster at all stages of project development and especially at meetings where major policy decisions were taken.

That they were not, or if they were that such advice was allowed to go unheeded, is something for which ICL cannot be blamed.

CLIVE DIXON  
Edlington, BirminghamGOVERNMENT COMPUTER REQUIREMENTS  
NATIONAL LIBRARY OF SCOTLAND  
NORTH LONDON COOPERATIVE AUTOMATION PROJECT  
(SCALAP) Ref. No. (CP 21/73/20)

This is a summary of the requirements for the National Library of Scotland (NLS) for a computer system to be used for the storage and retrieval of information. The system must be able to handle a large volume of data and be able to retrieve information quickly and accurately. It must also be able to handle a variety of different types of data and be able to handle a variety of different types of queries.

GOVERNMENT COMPUTER REQUIREMENTS  
MINISTRY OF DEFENCE  
CENTRAL WORKING UNIT  
CENTRAL WORKING UNIT  
CENTRAL WORKING UNIT

This is a summary of the requirements for the Ministry of Defence (MoD) for a computer system to be used for the storage and retrieval of information. The system must be able to handle a large volume of data and be able to retrieve information quickly and accurately. It must also be able to handle a variety of different types of data and be able to handle a variety of different types of queries.

## Plea for career opportunities for graduate mothers

EVERY week, among the letters I receive asking for careers advice are several from people in their late thirties and forties who want to enter computing. Some have applied for a TOPS programming course but have been told that above 35 years old they cannot be considered. Some of them have a business background and I advise them to try for systems analysts; others have teaching experience and I advise them to aim for instructional.

However, this still leaves a significant number, particularly of graduate mothers, who might well be capable of becoming the "mother" of a programming department, with 20 years of experience and a loyal service to give.

We could ascertain the suitability by including them in our regular Threshold activities, but to this end the minds of all employers are closed as the TOPS policy is to suggest, I shall be glad to help from any of your readers who are open minded and are prepared to invest in a potential long-term employee.

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Careers Projects Manager  
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## Snag for BASF's compatible bid

THE plans of West German chemicals giant BASF to enter the IBM-compatible processor market with a full range of top end and so far the company only has agreement for the Hitachi M-170 (CW, April 26).

The company also wants the M-180 and the M-200H to make up a three level line called Series 7. These machines are already marketed by Olivetti Computers and by Nasco, successor to Itel.

Key advantages BASF claims to offer are prices even keener than the 15 to 20% discount it offers on their IBM peripherals, coupled with "very flexible" leases, all written by BASF itself. Most of its large scale IBM-compatible disc drives come from the joint Fujitsu-Hitachi company Nippon Peripherals, while its tape drives come from Storage Technology.

The M-170 appears to be the BASF 7/60 and is rated equal to an IBM 3031. Significant differences are up to 8 megabytes of main memory and eight channels against six of each for the 3031, a 50% lower power requirement, and 30% less weight.

BASF plans to offer the M-180 in three upgradable models, the

7/70N, the 7/70 and the 7/70AP. The 7/70N offers about 83% more power than the 3031, offers 1 to 8 megabytes of main memory and a 16K-byte cache.

Increasing the cache size to 64K-bytes and doubling the maximum number of channels and number of megabytes to 18 turns the N model into a 7/70. The AP version adds a second CPU, but no more memory or channels.

The 7/70 model is rated at between 5 and 15% more powerful than the 3032 and the AP model 75% more powerful. However comparisons with the 3032 are not particularly useful, since that machine has effectively been superseded by the 3033N in IBM's catalogue.

At the top, the 7/80 is claimed to offer between 60 and 80% more power than the 3033; configurations are almost identical, but the CPU cycles at 42 nanoseconds compared with 57 nanoseconds for the 3033.

The 7/80MP is claimed to be twice as powerful as a dual processor 3033MP system and is simply two 7/80s tightly coupled running under a single copy of the MVS/SE operating system. A key plus that BASF is planning to offer with the 7/80

11/34 described as being on permanent loan." H-P, DEC and DEC each sponsors seven students at the moment. To get on the course they need at least one science A level and they must spend the summer vacation working for the sponsor.

Accepting the HP 1000 at the handover ceremony last week Professor Colin Adamson, of the University of Lancaster, pointed out that PCL's close links with industry meant that it was not being affected as seriously by the cuts in public spending as others.

Prof Adamson referred to the microprocessor training centre at PCL run in association with Integrated Computer Systems, a firm that specialises in microprocessor training courses (CW, July 28, 1979).

The course, introduced last year, is aimed at providing would-be field service engineers with a broad knowledge of computer technology, including basic programming, systems software and communications, as well as maintenance methods.

Apart from H-P, students are also sponsored by Data General and Digital Equipment and the course already has a DEC PDP-11/34 described as being on permanent loan." H-P, DEC and DEC each sponsors seven students at the moment. To get on the course they need at least one science A level and they must spend the summer vacation working for the sponsor.

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## Hawker takes off for systems market

WITH several years of application software design experience to draw on, Hawker Siddeley Dynamics Engineering, part of the £1,100 million Hawker Siddeley group, has set up a dynamic software service division, to win a bigger share of the rich systems market.

Starting with a £1 million investment in personnel, hardware and accommodation, a complete applications design and development service is being offered. The aim will be to join forces with hardware manufacturers to make joint bids for contracts. Partners in these ventures could include Data General, Modcomp, Digico, Ferranti and Computer Automation.

Manager of DSS is John Bancroft, who expects his present professional staff of about 35 to be doubled by the end of the year, said "We want to put DSS into the top 10% of the software and systems league in the next 12 months."

HSDE is already a prime supplier of control and monitoring systems for a wide range of applications in the aviation, marine and mining industries

and DSS sales manager Terry Ballard expects to extend equipment and systems sales well beyond the major customers already served. These include the Defence Ministry, the National Coal Board and the CEBG.

Most of the present Hawker Siddeley systems are based on Intel devices or Ferranti's F100, with Coral 66 and Mascot as the most frequently used languages. The use of Ada is now being studied. Development work at the DSS base at Hatfield, Herts, will be run on a Digital Equipment PDP 11/70.

Boats predictions  
WITH more than 100 systems installed worldwide and over 150 for delivery in the near future, Sperry Univac's V77-800 mini has outstripped the sales predictions made when it was launched last year. Applications are equally divided between commercial and scientific users and in the UK customers include Surrey County Council, Bass Charrington, Clydesdale Bank and the Metropolitan Police.

Oakley

## Codasyl representative

BARRY OAKLEY, software development manager at Micro Focus, will represent his firm on the Codasyl Cobot Committee, responsible for controlling the future development of Cobot.

The UK software house recently became a member and is one of only two European companies represented on it, the other being ICL.

The committee is composed of Cobot users and implementers and operates by means of amendments to the Cobot Journal of Development, which is used by the American National Standards Institute (ANSI) in preparing new language standards.

## The microcomputer with storage to spare



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## Downtime

by Chad

### Now CAD comes to the crunch

WHAT with the shortage of staff in the Health Service these days there is of course tremendous opportunity for computers to help out. The latest development, I am pleased to report, is in dentistry, where the supply of Australians coming over here to practise has dried up pending the introduction of cheap Freddie Laker flights from Down Under.

Never fear, this latest wonder of space-age technology enables any garage mechanic from Brighton to sort out your choppers without having to go through years of expensive training. The CAD (Computer-Aided Dentistry) System prompts him at every step along the way.

Of course it helps if you are well-eyed so you can keep one eye on the screen while the other is peering down the patient's gob. The next step is to have a Puma robot to wield the drill and forceps.



### You just can't trust statistics

DO you get as jaded as I do about this never-ending stream of portentous, expensively produced reports about how British industry is doomed, and how many millions of programmers we are short, and how many Northumbrian spoke-shavers are going to be put out of work by micro chips? I sometimes think if all the effort put into the reports were devoted to solving the problems, these latter would disappear in no time.

Anyway, a feature of reports is that they are self-replicating. Only a few reports have to come out before you can start writing reports about the reports, until everything has been repeated so many times it cannot be disputed. Alan Daniels of Brunel University was talking about this the other day. He was with the NCC in its early days, when they were trying to put together the systems analysts' course. They had been told that they must train 12,000 people in three years, an impossible task for one organisation.

It occurred to Daniels to ask where this figure of 12,000 had come from. After much investigation it turned out that one day someone in the Department of Education and Science had rung up someone in the Department of Industry and asked, "How many systems analysts does the country need?"

"Oooh, 12,000?" came the reply. For years afterwards this figure was quoted in report after report. In studies, manpower plans and projections. The originator would cringe with embarrassment every time he saw it. Who knows what the state of our industry would be now if he had coughed at the time and said something different? The kind would say, exactly the same.

### Choosing a computer is a question of philosophy

When it comes to the crunch it's all a question of need versus cost. Of course the easiest way is to buy a suit that's too big and then grow into it. Unfortunately it's also the most expensive way. And you always run the risk that it won't fit you properly, now or later.

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## GILB'S MYTHODOLOGY

### How Infotecture helps save on people-power



Tom Gilb is an independent consultant, lecturer and author on computing topics.

AT the end of my last column, I made what I hope was a provocative remark. I asserted that our present professional staffing and supply problems are not really the result of too much work for too few people. I asserted that at least part of the problem was that we lacked a professional class of system architects, which I'd like to call Infotects, trained and motivated to solve the manpower problem before it becomes one.

I mean that somebody at the beginning of the project should identify the fact that there is a clear limit on the available people-power, and make that fact central to the total architecture of the system. There is a choice. There are approaches to solving the real user problem in a practical, timely and economic manner, though not necessarily in an idealistic and "Not Invented Here" manner, which require substantially less people-power than the conventional programmed solution.

What I am asserting is that you can design Infotects so that human development time is reduced substantially. You might have to sacrifice some qualities, resources, costs and functions to do so - but after all, that is what architecture is all about. Compromise. You can't have it all at once. And if you insist on having everything, you must pay the price.

I think I would like to move

away from broad generalizations, and go to the source of them: experience. Let me give an example from my own practice.

In a far-away land and a far-away time there was a 100-person programming department which had worked ten years to get its 300,000 lines of Fortran code correct for a national taxation system. The new online, database computer was going to be delivered in six months, and one had promised the Minister an online demo in seven months' time.

The Chief of all programmers announced to me informally in the pub one evening that the plan was to rewrite everything to Cobol.

At first I was sure I had misunderstood. Later I let myself be convinced that he was serious, even if that meant all one hundred people, twenty hours a day, seven days a week for the next two years, until the project was brought in late.

I asked for and got a shot at an alternative Infotecture. Not least, I got support from the big boss. The one who was responsible, if things went wrong, to the Minister. The rest of the gang soon became my enemies, for reasons which I was later to learn.

The first step was to ease conversion by translating Fortran to Fortran. At my request we asked and discovered that the supplier was just about to release a Fortran conversion aid.

My client had never asked!

The administrative sub-routines for character-oriented data were not included in the package, and with a move from a four to ten-character-per-word machine, they were important. In order to convince my client that his was a straightforward conversion I had to personally flowchart the logic for the most complex routine.

The technical trick was an old one of Fortran portability: only four characters per word were utilised in the record buffers of the new system. My client was convinced before this magic trick was revealed, that it was easier to manually rewrite about 150,000 lines of code.

The next step was to declare the master files on the old and new system to be physically and logically the same. This eliminated the complex files they had planned - a quagmire of trap files were already deep in, and kept the main updating in a safe batch mode.

Then the online database was created by loading a master file, or abbreviated extract of it, straight onto disc files. No indexes or sorting, just a straight sequential load. Record retrieval was via a binary search, which with rough estimates implied a maximum one-second search time for the estimated eighty rush inquiries per day. Once all the high-volume updating was put back to batch, and all data collection was already on

separate minicomputers in the old batch system (interact input, batch output to the update), then there was more than a few online inquiries which required immediate response. An index would be more than it saved.

This Infotecture created heated debate. I was told I argued for the next months about whether or not the simple solution was possible. They finally accepted it, and completed the project in the estimate they saved hundreds of man-years. Just before I found out the real reason they wanted desperately to do the whole thing in Cobol. Nobody else in the country was using Fortran for administrative work, and they couldn't talk without the experience!

I have many more such experiences from varied contexts and application areas. My conclusion is that an awful lot of people-power is being used through lack of resources architecture - sorry, Infotecture. Just as we are beginning to recognise that better architectural decisions can save a lot of human effort and energy of the non-human variety, we must also wake up to a powerful "instant" solution to our people-resource problems. Or do we really have to get into a far more desperate situation than we are in today before we start moving Infotects into our organisational structure?

## FOCUS

### A down-to-earth DPM test

BEING a computer industry examination compiler must be a frustrating job. No sooner has the latest technology been laboriously assessed and hesitantly introduced into the syllabus than it has to be discarded in favour of the next technical revolution.

The examination world is very much an academic exercise, masterminded by individuals more than somewhat removed from real-life computing. Hence the general emphasis on number-crunching and CAD applications at the expense of such areas as databases, miniprocessors and management information systems.

Show an examiner a print-out and unless it features algebraic and analogue computation, he fails it. Similarly, present a Cobol program and it will be returned "re-compile in Fortran".

The individual's track-record counts for more than his ability to answer irrelevant questions on such topics as: The calculation of function values, and the plotting of graphs of exponential, logarithmic and algebraic functions. Use of and response to imagination and humour in explanation and persuasion (DPM 1980 syllabus).

A typical example of being out of touch involves visualisation. Few academics, being directly involved, the exam compilers choose to ignore the topic, yet Prestel could well unleash a whole array of new technologies and management information possibilities. So, do the exam papers dwell on such matters as servicing, contracts and recruitment, each of vital concern to DPM management and installations.

What is clearly required is a specialist computer exam, one which covers such topics as where best to dry out operators' wet boots and how to differentiate between the company MD and a visiting IBM salesman.

The Focus-style exam would invite candidates to muse on such questions as: 1. Why does the DPM invariably visit the program office during a spirited discussion on the merits of legalising pot? 2. Account for the site engineer being on a course during the peak load periods. 3. The one day when a major PM session is under way, the company chief arrives to show off the installation of a colleague. Evaluate the effect of cigar smoke and brandy fumes on a) the disc storage subsystem and b) smoke detectors.

Maybe it is time an exam was introduced to evaluate examiners. The BCSL, which has long been fighting a losing battle with Gullies and the newly emerging BEC/TEC National Awards, is now having to contend with a restructured exam.

Without doubt, however, the IDPM exam should be endorsed for all levels of consultants and auditors. One typical question calls for the demonstration of understanding of the operation of a computer and its peripheral equipment under normal commercial operating conditions. At least the DP team would have to explain that it is just the auditing team that is just possible to mark off, directly on the VDU, without a green bird.

### TEN YEARS AGO...

From Computer Weekly of July 2, 1970

IBM launched the 370 range with the 105 and 108 models first off the production line in February and April of 1971. The new town of Milton Keynes broke with tradition of soundbite ordering: ICL, who bought a £245,000 Surrogate, a £500,000 base system. The National Computing Centre revised its policy and set up three groups to cover development services, hardware and management services.

One tenth of the value of an order from the Argentine Navy for guided missile destroyers went to Fairchild, who were supplying weapon control systems worth £3 million. A "first" was claimed for a computer-based photographic processing system. The Organisation for Economic Co-operation and Development (OECD) reported that the world's most advanced computer system would still be the same as ten years ago.

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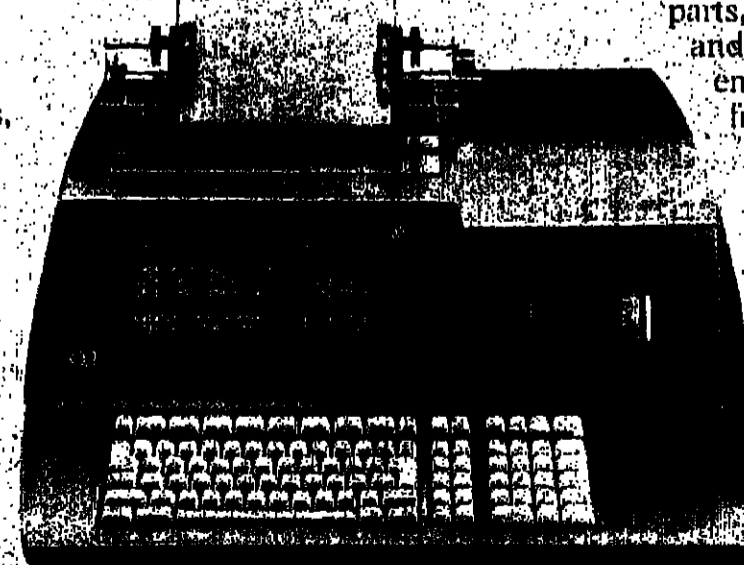
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# 'The million monkey method won't work' Even a perfect system needs some maintenance

THE management and deployment of programming staff through the life of a development project appears to be a serious unresolved problem, according to speakers and exhibitors at the NCC.

Randy Jensen of Hughes Aircraft Corp stated the problem succinctly. "The million monkey approach won't work. You can't get a project completed in zero time by putting infinite resources on it. Projects tend to get stuffed up as a stop function in order to ensure that there will be enough people on the project later on, the tendency is to put too many people on it initially, so that there are more people there than can work effectively. As a result the schedule slips, and so more effort is brought in to try to speed it up, but that approach does not work. The net effect is to make the project later still."

"What we are after is efficiency, and that means the minimum number of dollars for the maximum profit. It has been demonstrated that by initially planning the project with fewer people and accepting a longer development time, the project will be completed more cheaply. If, however, staff are misapplied, productivity and reliability both go down."

Surprisingly perhaps, given the fact that everyone seems to believe that the Japanese do things much better than we do, a Fujitsu representative declared in private conversation that Japanese companies tend to put too much effort into their projects — and suffer for it. "There is no shortage of programmers in Japan," he declared, "but we are at least two years behind the US in software development."

"A PROGRAMMER with 10 years' experience will have spent half that time on maintenance — and half the cost of software lies in its maintenance." Strong words, and not the kind programmers will welcome, but this was nevertheless the view put forward by Judy Clapp of Mitre Corp, speaking at the National Computing Conference at Anaheim, California.

She was addressing a session on the economics of software and challenging the accepted notion that the need for software maintenance is necessarily bad.

"An obvious example of a system where maintenance is beneficial and essential is one which is critical to people's lives, such as an air traffic control application," she said.

This week Page Six moves across to California and reports on some of the programming and related topics that were discussed at the 1980 National Computing Conference in Anaheim.

"But maintenance is necessary even in a perfectly conceived and designed system. The whole point of putting it into software was to be able to change it if necessary — and it has been shown that one third of hardware problems are solved by changing the software. It's the cheapest way."

"For example, a modification was needed in the F-111 fighter-bomber fleet. On some aircraft the application had been implemented in hardware and on others in software. To do the same modification cost \$8 million and took 78 months in the hardware version, while the software change cost \$20,000, and took only a few months to complete."

"Users' needs change and develop, and even a perfect system

needs to change with them; it's healthy for systems to require maintenance and the time to plan for it is early in the development phase. During this phase the software engineer is in control; once it is in maintenance, the user has control."

Earlier in the discussion, Fred Tatar of Ford Aerospace had painted a grim picture of the soaring costs of software development, suggesting that setting up a major project cost \$15,000 per software person in startup costs and \$20,000 per person in software costs per year. The latter figure is driven up by the cost of replacing people who leave.

"I'm sure that we are not the only people experiencing this, but company loyalties in Palo Alto seem to have an amazingly

short life," he commented. "If you have 100 engineers leave in any one year, and \$10,000 each to replace."

Tatar's solution to the problem was the installation of development machines. "We're using Digital Equipment Corp's 11/70s with the Unix operating system. We have 15 of them; design support tools and compilers and assemblers."

"By going with the 11/70s Unix we had something to analyse the operation. At present, have one terminal per two engineers, but we would like to have one to one."

"If you have really good development facilities, our experience over one year at our site got a much better idea, with job candidates. We're reducing our people to pay, communication and pulling more electronic mail, and developing standard ways of doing this. That way we're slowly becoming less dependent on specific individuals."

## Female attitudes that bar the advancement of fellow women

WOMEN should "forget past prejudices and face real time problems in the world," was the message from Ida Mason of LeHigh University when she addressed a session on women in computing at the NCC.

These "real problems" included women's promotion where they involved relocation. Would a husband be prepared to move with his wife if he earned more than she did, if the move meant a drop in the joint salary?

Another of the "real problems" sounds downright trivial, but is one which American women obviously take seriously. Responsible positions involve travel, but it is more dangerous for a woman to travel late in a large city, while travel with male colleagues often led to objections from the men's wives.

The consensus seemed to be that other women, and female attitudes in general, were the biggest bars to the advancement of women. "Where a man be-

lieves that he achieved his position on merit, a woman believes she got there by luck," commented Ida Mason.

This sort of problem was rampant, it seemed. "A woman faced with job candidates will tend to choose the man rather than the woman, in the same way as users tend to choose IBM, because it's safe," continued Ida Mason. "There is also the Queen Bee syndrome: I worked long and hard to get here; why should she have it any easier?"

Nevertheless, things are much better for women in the DP industry than in the employment market as a whole. "Throughout the US economy," women's salaries are only 60% of men's, but in DP the figure is 86%," claimed Ida Mason.

In spite of this assertion, the "real problems" of women seeking advancement in industry seem to be acute, which was obvious from the feminist protests coming from the floor

throughout the discussion. What came strongly across was that the US employment scene is very different from that in the UK and that, for example, imaginative solutions to problems involved in the employment of women — as in F International's home programming network — are practised in the US.

Page Six will be pleased to hear the views of women in the UK who agree or disagree with the worries of their counterparts in the US.

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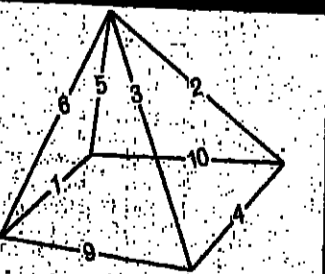
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### Puzzler

THIS diagram, which formed the subject of the November 24, 1977 Puzzler, illustrates the only way (not counting rotations and reflections) in which the eight edges of a square-based pyramid may be numbered — using eight different positive integers — to give a constant of 18 at each vertex.



An interesting analogous problem is to search for eight consecutive positive integers which may be used to construct a similar figure. Only one set exists. Can you set up the appropriate pyramid, with the numbers correctly placed, before turning to page 48 for the solution?

## SOFTWARE FILE

by Claire Gooding

### ICL and SPL in talks

ALTHOUGH ICL has expressed an interest in investing in the systems house SPL, MD Peter Adams has confirmed that the preliminary discussions had no positive outcome. "We have approached from people all the time but this one got nowhere," he said.

Meanwhile SPL's venture into robotics, British Robotic Systems has won its first contract (CW, March 8). "If we can prove that robotic systems controlled by micro can meet the needs of industry then we're in business," said Adams. "The main difficulty is to persuade some sectors of industry that robotic systems are worth investing in."

### Pack enables DEC machines to talk to IBM

A COMMUNICATIONS software package has been developed jointly by Sicon Consultancy International and AERE Harwell. The package, XN11 is one of a family of host interfaces. It enables IBM and Digital Equipment computers to communicate directly via an IBM channel. This means that an IBM mainframe using SNA can support a communications network conforming to non-IBM standards.

The host interface package provides a network gateway between any network architecture on DEC hardware and the IBM machine by emulating a sub-area of an SNA network such as would be created by a set of terminal clusters connected through an IBM 370X communications controller.

(the hardware connecting PDP-11 to IBM channel) which communicates with the IBM mainframe via VTAM. The channel interface is written in Assembler and the SNA emulation is in Coral 66.

Another module, the transport station interface, provides access to any given network. At Harwell the TSI supports Hans, a private packet switched network using Decnet line control protocols, but alternative

TSIs could be used to support other styles of network such as X25 or Dernet.

XN11 complements rather than competes with DEC's own protocol emulator SNA-PE, which uses serial communications rather than the faster channel parallel method. The different scope of the two products is reflected in their respective prices. SNA-PE costs about £6,000 while the more comprehensive XN11 costs £25,000 for software and a further £13,000 for hardware.

Not that the price bothers the buyers for whom XN11 is a significant facility, typically multinational industrial and banking organisations. Sicon has already installed some XN11s and has orders from over a dozen organisations.

### Spelling correction program for micros

A SPELLING correction program for micros is available from Southdata, a firm set up to market a variety of packages by "cottage industry" programmers.

The program, Corrector, corrects some spelling mistakes automatically and draws attention to the ones it can recognise but not rectify. It checks text against a 25,000 word list supplied by Oxford University Press

and replaces incorrect words, giving a list of alterations and references at the end.

It works at about 60 words per minute and plans for the product include an "instant editor" for common typing errors such as double letters or reversed pairs and hitting neighbouring keys. Corrector runs on a Z-80 microcomputer, requires 150K on disc and 12K of core and costs under £250.

## Copyright Bill is tabled in Congress

THE lack of a clear legal framework dealing with copyright causes problems to software dealers in the US, according to Dan Fylstra, president of Personal Software, one of the leading microcomputer software companies in the US.

Recognition of the problem has led to the tabling of a Computer Software Copyright Bill in Congress which, with the help of the Microcomputer Industry Trade Association should extend protection to software.

Fylstra, who is on the association's software copyright committee advising Congress, has his own ideas. "There are a variety of software-dependent schemes, but the best bet is to take technical measures to prevent copying."

He also pointed to the difficulties particularly relevant in the world of programming personal computers of a contract of employment giving employers rights and titles to the work of an employee.

This has led to the "stars" of large companies leaving to set up their own enterprises. Fylstra's own company, paralleled by Petsoft in the UK, grew out of these circumstances and the number of small micro-based enterprises is rapidly increasing.

However, such enterprises are threatened by the unclear law of copyright and a lack of understanding of the technology involved by the makers and interpreters of law. The Data Cash case in the US threw this problem into relief (CW, March 20).

It was echoed by the MicroAcc case in the UK (CW, June 12) which neither Sinclair nor Cary wished to become a test case for UK copyright law.

The Computer Software Copyright Bill proposes: "It is not an infringement for the owner of a computer program to make or authorise the making of another copy or adaptation of that program provided: 1. that such a new copy is created as an essential step in the utilisation of the machine and that it is used in no other manner and 2. that such a new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful."

Fylstra is not alone in having doubts about the power and efficacy of the proposed law. Prof Bryan Niblett of University College Swansea is aware of a concern among US users that the new Bill weakens rather than strengthens the law, particularly in giving the lawful user certain rights which reduce those of the copyright owner.

Niblett is advising the DoI on the use of the present UK copyright law with regard to computer applications in a report which will be available in autumn.

Copyright specialist Allstair Kelman also expressed dissatisfaction with the US attempt to answer the copyright problem. "The bill is the computing equivalent of making the reading of

### More efficient version of CP/M ops system

SEVERAL new products are on the market for the widely used small machine operating system, CP/M, which supports a broad array of languages and works on micro-based systems using Intel 8080, 8085 and Zilog 80.

Version 2.2 of the system is said by authors Digital Research of California to be more efficient and reliable as well as truly universal. The company has also released a modestly priced multi-terminal system compatible with CP/M, known as MP/M, which provides multi-programming facilities at each terminal as well as real time

and MP/M is a PL/I-80 and library which provides an Anal general purpose subset of the language aimed at business, science, research and education users.

At the same time Info 2000 has introduced performance improvement software, called Turbocharger, which is said to accomplish diskette input/output three to five times faster than normal in CP/M applications, and to increase data storage on each diskette by 30%.

It is available in the UK from BSH Electronics of Manchester for £185, including Version 2.2 of CP/M.

CP/M was named on the Datapoint Honor Roll in 1979 and is widely used throughout the world.

### Virtual machine option

A TIME sharing operating system for Digital Equipment PDP-8s known as Ecos, is to be marketed in the UK by DEC specialists Computer Applications Ltd of Chorley, Lancs.

Using firmware, Ecos is said to make the PDP-8 a virtual machine, transforming single user PDP-8s to multi-user time shared systems, running under DOS/800 and OS/8.

The system was originally developed some years ago in the US to enable multiple users to develop programs in Basic or Fortran.

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## PEOPLE and EVENTS

## Ichbiah leaves CII-HB to develop Ada

Ada designer Jean Ichbiah is leaving CII-Honeywell Bull, where he was responsible for the software division of the research centre, to set up a consultancy which will specialise in the development and marketing of software using advanced technology.

The name of the company will be Apsys, a kind of dual mnemonic which can stand either for Ada Pro-

gramming Systems or Applications et Systems. It will start by developing and promoting the Ada language.

A special relationship has been established with CII-HB, which feels the need for maintaining the European lead in the development of Ada, and has taken a 15% holding in Apsys.

## Girl technician prize

The engineering industry needs to attract more bright trainees, especially girls, many of whom do not consider engineering as a possible career. The Girl Technician Engineer of the Year award was set up to draw attention to electrical and electronic engineering as a career for women.

The winner of the £250 prize is an outstanding girl technician engineer who has followed the appropriate training and has proved herself by holding a responsible job. It is hoped that by her example she will encour-

age more girls to make a career in electrical and electronic engineering.

The last date for nominations this year is October 1, 1980. Details and nomination forms can be obtained from Mrs Eileen Sheldon, JEETE, 2 Savoy Hill, London, WC2R 0BS, tel: 01-836 3357.

The award is sponsored by the Caroline Haslett Memorial Trust and the Institution of Electrical and Electronics Technicians Engineers.

## University post

PROFESSOR Morgan Howard Williams (left) has been appointed to the Chair of Computer Science at Heriot-Watt University, Edinburgh.

Williams was born in South Africa in 1944 and gained BScs in Maths and Physics from Rhodes University, South Africa. From 1967 to 1969 he was physicist with an Antarctic expedition, and in 1971 was awarded a PhD in Physics for his thesis on Diurnal and Seasonal Variations in the F2 Region of the Antarctic Ionosphere.

He joined the teaching staff of Rhodes University, and in 1973 became head of the Department of Computer Science. He is co-editor of the computer journal *Questions Informaticae*.

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At the end of a company T-shirt, Roger Orge, Kier Hopkins takes instruction in driving a March Formula Atlantic racing car from his owner, Roger Orge. Roger is sponsored by Baric, and the company is engaging a series of customer hospitality days at circuits around the country where he will be racing. Last year, he finished second in the BRSCC National Formula Libre Championship.

Mike Roe, until recently government sales manager with SIA, has joined CSC London as general sales manager and director designate. Mike Tuohy, from ADP Computer Services, Walter Rotherham, from the US, and David Robinson from Rank Xerox have joined CSC as marketing executives.

Mike Evans has become sales support manager for communications products with Arbat. His most recent job was as senior systems consultant.

David Steadman has become a vice-president of Raytheon in the US, heading the intelligent terminals operation in Massachusetts. He returns to Raytheon after a year and a half as chief executive of EMI's medical electronics operation.

David Warren, previously national sales manager with CPT, has joined Sperry as sales director. He replaces Patricia Hake, who becomes marketing services director.

Martin Walne has been appointed sales manager for data and text communications at Pye Business Communications.

Brian Perry has been appointed operations research manager at GMS Computing.

Four men have been appointed at Logabex. Gerry Cook is to be UK products marketing manager. He was previously systems marketing manager and before joining the company was with Honeywell and Adler Business Systems.

Previously with Datasab, Bryan Senior becomes sales manager for Western and Northern regions of the UK. Ron Goodman has been promoted to UK dealer manager and Mark Powell has been promoted from systems analyst to UK software manager.

## DIARY

**JULY 15**  
Debate, Pascal is not a practical programming language/ACM, ACM, UK chapter, BCS, 13 Mansfield Street, London W1, 6.30.

**JULY 17-18**  
Meeting, IBM Computer Users Association Local Authorities Group, Shire Hall, Warwick. Details: Mrs Spence, 01-431 1643.

**JULY 21**  
Solution of linear programming problems with algebraic structure. Prof O.S. Madson, BCS Mathematical Programming Study Group, London School of Economics, London WC2, 6.30.

Gerald Perutz has become an executive vice-president of Bell & Howell in the US, with responsibility for all the company's operations outside the US, as well as some within it. Until 1977 he was general manager of Bell & Howell European region; he left to become a corporate officer at the company's Chicago HQ. He is still chairman of Bell & Howell Ltd.



Conservative MP John Butcher has joined the board of ACT Computers of Birmingham. Butcher is 34 and entered Parliament at the last election, as MP for Coventry South-West. He is vice-chairman of the All-Party Information Technology Committee and a secretary to the All-Party Committee for the Legislation of CS Radio.

Bob Brown has been appointed as senior systems consultant with Arbat (UK). Among his responsibilities will be the development of Arbat's banking and communications systems consultant for the Intellex range of message switch products.

Formerly a Systems Designer in the Application Development Division, June Bush becomes senior systems consultant with particular responsibility for the Intellex range of message switch products.

Mike Hudson has been appointed microprocessor systems manager at National Semiconductor's Bedford sales office. Hudson joined the company from Texas Instruments, where he was a consumer field sales engineer.

Peter Lea has been appointed UK national service manager of A. B. Dick, the GEC subsidiary. Lea, who has held a number of senior marketing posts at ICL, will be responsible for all operational, technical and commercial matters in connection with customers.

A second A. B. Dick appointment is that of Eric Springate as director of marketing. He joins the company from Sperry Univac where he was international marketing manager in the Business Systems Marketing sections.

## SOCCER Summer Computer League

THE Summer Computer League is now well under way and here is the first batch of results for the season:

**Division 2**  
ICL 2, Datasolve W.E. 0  
Datasolve W.E. 5, Compton Raiders 0  
Compton Raiders 1, NCR 'A' 3  
Compton Raiders 0, Forest 8

**Division 3**  
Venet 0, British Aerospace 9  
SBS 1, Jadou 'B' 0  
Gil & Duffie 7, Venet 4  
British Aerospace 5, SBS 1  
Gil & Duffie 2, British Aerospace 2

**Division 4**  
SIL 2, Kingston 5  
Logica 3, NCR 'B' 2  
Kingston 2, Logica 4  
Logica 2, UCS 3

**Division 5**  
Adkins 0, Hoekmans 4  
Cup (First Round)  
West London Xerox 0, Forest 8  
Compton Raiders 0, Computer Weekly 3  
British Aerospace 3, Hoekmans 1

## Ferranti sales move

FERRANTI's computer department has moved from its old address to new premises in Wokingham, Berkshire, to its new premises at F100-L micro, and will use its facilities to include the M700 mini.

The address of the department is: The Courtyard, 20 Dunsell Wokingham, Berks, RG11 3 0734 780078.

## Midlands branch

SYSTEMS house Distributor Service has opened a Midlands branch, managed by Mitchell.

The new address is: House, Bristol Street, Birmingham, Tel: 021-632 6446.

Richard Hunt, from the where he was a sales engineer, joined Peripheral Hardware as a sales executive. John Hunt became a sales executive, from the systems and information division of Marconi Space Defence, where he was a sales engineer.

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## No government go-ahead for ICL licence fee

IN its letter to ICL agreeing to accept only limited changes to ICL's commercial practices (CW, June 26) the Office of Fair Trading informed ICL that the agreement should not be taken by ICL as an irrevocable acceptance of the principle of the licence fee or levy that ICL charges customers who install compatible hardware from other manufacturers.

Moreover, the OFT told ICL that the agreement did not preclude the possible future use of the Office's powers under the new Competition Act. The Act should give the OFT much wider powers and was the main factor which persuaded it to start talk-

ing directly to ICL late last year (CW, December 13, 1979). The Office had been lobbied for several years by companies affected by ICL's practices, including its foreign attachments policies.

The changes in ICL's attachments policies include a reduction in the maximum levy on locally attached peripherals from 20% to 16%, and the introduction of uniform pricing for all EDS 60 controllers on 1980 systems. ICL used to charge a very high price for the first EDS 60 controller on a 1980 system and very little for additional controllers, thus pricing any plug-compatible disc system supplier

out of the market.

But one of the leading complainants, Ken Annan of Teknos Systems, said that the EDS 60 business was now effectively dead, so that this change had come too late. Teknos used to offer a plug-compatible EDS 60 replacement.

Annan said that Teknos was still hoping that its complaints to the EEC about ICL would lead to ICL being forced to compensate Teknos for its loss of business. Under articles 85 and 86 of the Treaty of Rome, the EEC Commission could in theory fine ICL up to 10% of its previous year's turnover as well as ordering ICL to cease its violation of the Treaty if such violation were proved.

Add-on memory supplier Systems Reliability made similar complaints to the EEC and one of its customers, the Norwich Union Insurance Group, was the first individual user to publicly challenge the attachment policies (CW, February 24, 1977). See Computerview, page 2.

Tony Evans, marketing director of Systems Reliability, told Computer Weekly, "This agreement between ICL and the OFT will not benefit us at all. ICL has won. It has got away very nicely."

Referring to one of the other points in the OFT agreement, Evans pointed out that ICL's undertaking to provide store extension units as separate units subject to the availability of returned and refurbished units was meaningless, because no units were available. Asked to comment on this, ICL said that it expected more extension units to become available as more 1980s came back from users.

One other undertaking made by ICL was that it was prepared to carry out standard modifications to an ICL system to accommodate a non-ICL device for "a fair and reasonable charge". Ken Annan of Teknos commented, "What is a fair and reasonable charge?" ICL said that such a charge was one that was not excessive.

## St Gobain plans to gain control of CII-HB

A CONVOLUTED series of financial transactions which will give Compagnie des Machines Bull 20% of Olivetti to put beside its 53% of CII-Honeywell Bull is planned by the French industrial conglomerate St-Gobain-Pont-à-Mousson. At the same time St Gobain will get a controlling 51% stake in Compagnie des Machines Bull, giving it effective control of CII-HB.

The French government's involvement in Machines Bull falls from 20% to 10%, various banks have another 10%, and small shareholders see their stake diminish from 60% to 29%. Under French company law a "block minority" holding is 34%, so there is no single group which can block any St Gobain proposal without mobilising a substantial number of the small shareholders.

There is no question of CII-HB and Olivetti actually merging in the foreseeable future, since St Gobain's Roger Fauroux and Olivetti's De Benedetti have signed an agreement excluding a merger for five years.

The mechanics of the arrangement are that Cadamas, a holding company owned 76%

by St Gobain, and which holds the latter's Olivetti shares, will be taken over by Compagnie des Machines Bull, through an issue of new shares. The other 24% of Cadamas is split between a group of banks, which have 20%, and Sofimatique which has 4%. St Gobain has 70% of Sofimatique, the other 30% being held by Société Générale.

As well as the Olivetti shares, Cadamas is the holding company for 10% of Compagnie Financière de Suez, and, believe it or not, 8% of St Gobain itself. These holdings will of course also pass to Compagnie des Machines Bull. Thus the rearrangement is to be effected without any money changing hands.

St Gobain hopes that the new arrangement will lead to closer co-operation between CII-HB and Olivetti, particularly in the office automation field. Apart from some OEM business, CII-Honeywell Bull does not operate in Italy, its products being sold there by Honeywell Italia. The latter is a 100% subsidiary of Honeywell Inc, which also owns the other 47% of CII-Honeywell Bull.

## Raising the productivity of managerial staff

OFFICE automation could be saving 15% of the time of managers and professionals by 1985 in organisations prepared to commit "sizeable resources" to bringing in new techniques. That is the principal conclusion of a multi-client study on the use of electronic office equipment by professionals, carried out by New York consultants Booz Allen & Hamilton.

Harvey Poppel of Booz Allen has long been a proponent of the idea that office automation should seek to raise the productivity of high-paid executives and professionals rather than that of lower-paid clerical staff.

The 300 staff in a range of US firms that were interviewed felt that on average they spent 25% of their time in less productive activities which did not make good use of their time, such as clerical tasks, finding and screening information, and scheduling and organising work. Electronic support tools should save between 10% and 30% of the time of "knowledge workers", by 1985, the Booz Allen study found, with a 9% improvement achievable within 18 to 24 months for those ready to move ahead aggressively. The quality of work should also be improved.

## Cobol for Rapport

LOGICA has announced the promised Cobol interface for its compact and portable relational database system, Rapport, which was launched last year with only a Fortran interface. Despite the fact that most of the 40 or so existing Rapport users are technically oriented, Logica says that about 20 of them have expressed a strong interest in a Cobol interface for the system. Customers with the keenest interest, according to Logica, are users of 32-bit minicomputers like the Digital Equipment VAX-11/780 who

want to set up a small commercial database. Logica developed Rapport originally in co-operation with the Royal Armament Research and Development Establishment at Fort Halstead near Sevenoaks, Kent, and has strengthened its position in the military sector with the introduction of a Soral interface. Other enhancements to Rapport include multi-level record protection where protection can be applied to selected records and to selected fields within records.



As part of a display on employment and training aimed to make MPs more aware of the work of the Manpower Services Commission and the Department of Employment, a Prestel set was installed for one week in the House of Commons Upper Waiting Hall by Radio Rentals Contracts. The Central Office of Information manned the set to demonstrate the range of information on Prestel that is available on Prestel from both government and private sources.

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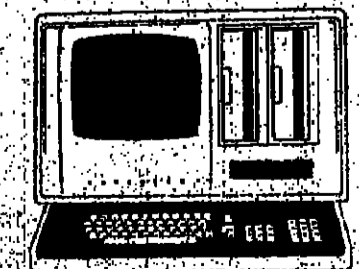
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## MICRO NEWS

# Double challenge to Sinclair portable

A CHALLENGE to Clive Sinclair's portable computer system, the ZX80, has come from Newbury Laboratories in the UK and from Sharp in Japan. Although the newcomers differ with respect to size, power and capability, both can be battery operated and both offer battery backed RAM.

Newbury Labs' NewBrain (pictured right) fits into a briefcase while Sharp's PC1211 is a pocket size hand held device. Due for UK launch in July, the PC1211 will cost £110 with an optional cassette tape recorder at £20.

The PC1211 has a full alphanumeric keyboard with a reservable 18-function key system, and a 24 character dot matrix display. It is capable of standard Basic programming utilising 1,424 bytes of NOV-

RAM, and has 208 bytes of data memory. The PC1210 has only 400 bytes of program memory and 28 bytes of data memory.

On the surface it seems that both devices have a memory limitation as most software packages supplied in Basic for personal computers require at least 7K-bytes of RAM.

The problem can be overcome by a system of loading a small portion of the program at any one time from the cassette and working through the program in sections.

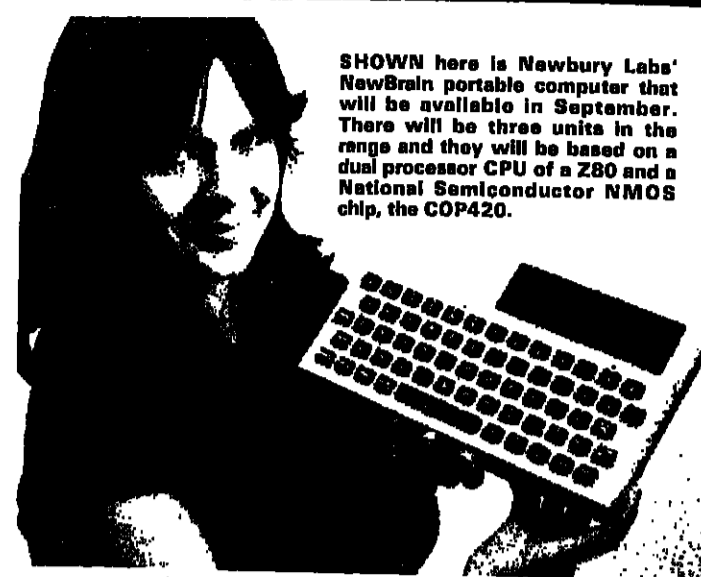
Another problem is the liquid crystal display which can only hold one line of data 24 characters long. However, the company is in the process of developing a liquid crystal strip that can display four lines of 80 characters, rolling left to right to show 40 at a time.

In the UK, the PC1211 is a direct competitor, price-wise, to the Sinclair ZX80 (CW, February 7), but this does not have battery backed RAM or battery operation. Measuring 9 x 7 x 2 inches, it is twice the size of the PC1211, but its size and price do not include a display.

The ZX80 is far more powerful than the PC1211. It is Z80-based and has the equivalent of 4K-bytes of RAM, expandable to 16K-bytes.

Both companies appear to be aiming at the user with little or no computer knowledge, as they have provided a push-button facility for simplifying programming.

One important advantage Sinclair has over Sharp is on the software scene. ACT Petsoft is to supply software packages for the ZX80 from August.



SHOWN here is Newbury Labs' NewBrain portable computer that will be available in September. There will be three units in the range and they will be based on a dual processor CPU of a Z80 and a National Semiconductor NMOS chip, the COP420.

## Newbury Labs' kit is based on dual processor

NEWBURY Laboratories' challenger to Sinclair is the NewBrain range which comprises three units and the first is expected to be launched in September. Called the M series, it costs about £80 more than Sinclair's ZX80 which Clive Sinclair has said will cost £99.95 by mail order.

The M series operates on mains only and requires the use of an external video terminal. However, it is said to be more powerful than the ZX80 and has a much larger capacity.

The other two units in the range, the MB series and the MB series, differ slightly. The MB costs £195, operates from mains or battery and has its own display, while the MBS is the same as the MB but costs £245 and has a lower power consumption. Both have battery-backed RAM.

The power of the NewBrain range stems from its dual processor CPU; a Z80 does the processing while a National Semiconductor NMOS microcontroller, the COP420, controls display, keyboard and the peripheral drive interfaces. Standard memory capacity for the three devices is a choice of 2 to 4K of static or 16K of dynamic RAM.

Capacity can be increased extensively in each unit by the use of an expansion box, which comprises two PCBs. The box can contain most combinations of systems ROM, applications ROM and user RAM with limits of 3 mbytes, 4 mbytes and 4 mbytes, respectively.

Newbury Laboratories claims the NewBrain is twice as fast as Commodore's Pet. The reason given for this is that the software includes compiled Basic as opposed to the interpreted Basic used in other systems, although the speed is only noticeable when running large programs.

Eight I/O ports include two for analogue interfacing, two for a dual audio cassette interface, a V24 interface for printers and VDUs, a composite video output, an ordinary television interface and a bus-connector for add-on modules.

### Texas additions

ADDITIONS to Texas Instruments' TM880 16-bit microcomputer family are to be made in miniature form. The TM880/E series will be available on 100 x 100mm boards.

### New Chair created

A £250,000 Chair in microprocessor applications in industry is to be set up at Manchester University backed by Barclays Bank.

### Low power high speed 6802

A LOW power high speed version of Motorola's 6802 8-bit CPU is being made by Intel of Canada and will be distributed in the UK by Farnborough Systems in Cambridge. The MC6802 is a 1.5µs processor with 500 instructions per second and 500K of on-chip memory.

by Eileen Staines

## 3 modules expected for Christmas

THREE modules are expected for Christmas from Newbury Labs. One is an address supply a further set of 16 parallel ports and another enable users to generate data characters while the third is a disc drive module which is likely to be introduced with CPM compatible disc operating system.

On the software side Newbury is developing a small number of packages in the next six months but hopes a software house eventually take over.

ACT Petsoft is currently reviewing the situation and aiming to offer software for six best selling systems but have been announced up to now.

At the moment system software comprises a full editor, a line editor, a BASIC compiler and an operating system. High speed floating point arithmetic (multiply takes less than 2ms) accurate to significant figures is included along with trigonometric and inverse trig functions.

In development now is hoped to be ready by Christmas are assembler, Cobol and Pascal modules and utility packages written in Basic and assembly code.

Initially Newbury will be distributing and marketing the base in Odham, Hants but a few retail outlets are under consideration as alternative distribution sources. The company hopes to supply 1,000 units during September and 3,000 more by Christmas.

## Small version for US market

A SMALLER version of Sharp's portable computer system is being planned for the US as direct competition to the programmable calculator market.

However, this will only be open when a printer attachment is available and that is not expected until the end of the year. The US version is expected to be the size of a pocket electronic typewriter.

## Games firm goes personal

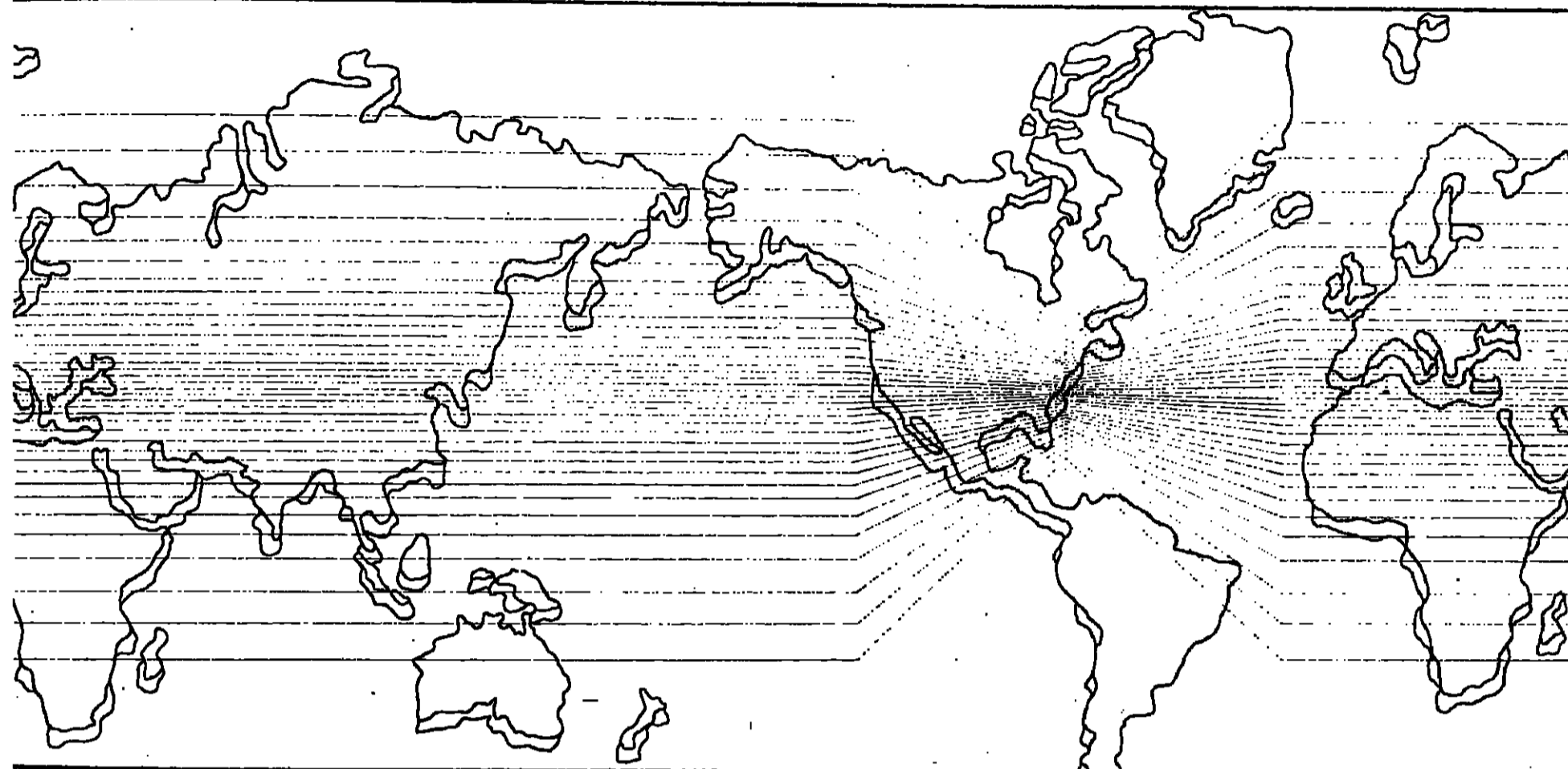
VIDEO games specialist, one of the US, has launched its home computer systems which will be distributed in the UK by Ingersoll Electronics.

Both the 400 and 800 systems are based on Motorola's 6802 microprocessor and have full keyboards with capability and are programmed in Atari Basic. Differences in memory capacity, and system capabilities.

The 800 system which costs about £750 has 8K of RAM expandable up to 48K and 64K ROM expandable up to 64K. System 400 which costs under £400 has the standard with no expansion capability. In appearance they are slightly different and the 800 version has an ordinary keyboard, while the 400 has a touch-sensitive keyboard.

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## A Decade of Dataskil

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# Fujitsu's OEM deal opens Euro door

FUJITSU's OEM agreement with Siemens on large mainframes is proving to be the Japanese company's most successful onslaught on the European market.

In its first year of marketing, Siemens has been much more successful than Amdahl in persuading large commercial IBM users to buy plug-compatible. It now has four machines installed, five on order and firm letters for four more.

Siemens has overcome an obstacle which Amdahl does not have to face: persuading MVS users to run their programs under the compatible but different BS3000, the Siemens name for Fujitsu's OSIV/F4 operating system. Siemens claims the BS3000 is at least 10% more efficient than MVS.

The first Fujitsu machines installed outside West Germany has gone to Computer Centre Limbourg, CCL, in Holland. A government computer centre and already a Siemens user, the

centre wanted to be able to run IBM programs and has installed a 7.870.

Apart from the installations at the Hahn Meitner Institute in Berlin and Dated in Nuremberg (CW, September 13, 1979), the other machine already installed is a 7.880 at an unnamed banking data processing centre in Southern Germany where, following proving trials, it will replace one of two IBM 3033s.

There are 7.880s on order at the Max Planck Institute in Munich to replace an IBM 380/91, at mail order and department store chain Quelle, where it will replace a 370/188MP and run alongside a 3033, and at the Geovox centre for the West German army.

Geovox wants the machine for a new, classified application and chose it in preference to a CDC Cyber 175 and a 3033. The new 7.885 model, which is priced 20% below the 3031 but claimed to offer 30% more power, is on order for Munich farm equip-

ment company Baywa, and for the DAS insurance company.

The 7.880 is Fujitsu's M-200, rated at 6.2 mips against 6.8 mips for a dual processor 3033. The 7.870 is Fujitsu's M-180 and the 7.865 is based on the M-180AD.

The one big difference between the Japanese and the IBM software is the database management system. Against IBM's IMS, Siemens offers Fujitsu's advanced information manager, Alm which is full network Codasyl database. So far only the Hahn Meitner Institute has adopted it.

Siemens offers mainly Fujitsu peripherals with the 7.800 systems, including a new three-colour display called the 3887 as a partial answer to IBM's four-colour 3278.

The Fujitsu 2806 communications controller, which runs IBM's Network Control Program for SNA networks and is claimed to be 2½ times as fast and offer 1½ times throughput of IBM's 3705.

## French say they will obey EEG rules

**SPEAKING** at the annual meeting of the French Club de la Parole-Informatique, Jean-Claude Pellissier of the French industry ministry said his government would adhere strictly to the "free competition" directive on public sector purchasing.

The club, which consists of 30 peripherals, small systems and services companies, had a splendid year in 1979, with aggregate profit up 47% at FF 480 million on turnover up 30.2% at FF 3,007 million.

Of this, 22.6% went for export, an increase of 28.2%.

## Swedish government agreement ensures Datasaab's future

**ALTHOUGH** Sweden's only computer manufacturer, Datasaab, is more than willing to collaborate with European or US partners, the company is not seeking a buyer and its agreement with the Swedish government ensure its future as an independent company.

So says president Gunnar Weddell.

"We did have talks with ICL, but they were terminated with no agreement (CW, April 17). ICL was interested in our bank-

king and display terminals in our European marketing work, but we could not reach an agreement.

"We had talks with Unifac earlier about their marketing our banking terminals, but they were not prepared to pay enough money."

Unifac ended up adopting banking terminals from Bunker-Ramo, but industry sources say that there is a lot of feeling within Unifac that this decision was a mistake.

In the last financial year, Datasaab made an overall loss of SKr 208 million (21 million on turnover Kr 873 million (80 million). For the current year, it is forecasting a lower loss, about SKr 135 million on turnover SKr 1,111 million (812 million). Another loss is forecast for 1981 and the company hopes to break even in 1982.

Reason for Datasaab's loss-making status since its formation in 1978 with the Swedish government having 50% of the shares and Stab-Scania the rest, is that the programme established at that time called for substantial investment in developing its line.

Over a four-year period, Datasaab will get a grant of SKr 300 million, but the accumulated losses up to April this year have already absorbed SKr 811 million.

Datasaab now estimates that it will overshoot the SKr 400 million target by about 50% and on June 10, the Swedish Riksdag (Parliament) voted the company the money it needed to balance its books. It has the additional security that if Saab-Scania wishes to sell its shares, it must offer them first to the Swedish industry ministry.

The company's products consist of banking terminal systems and small business computers, both built around versions of the same bit-slice minicomputer. Alfaakop VDUs and cluster display terminals; air traffic control systems and clinical systems for use in hospitals.

In the UK, Datasaab has about 125 DIB business systems installed, and about 30 of the Series 16 successor product on order. Five building societies are its banking terminals.

In Finland, Datasaab products are marketed by Datatek-Valmet, in which Datasaab has a 25% stake. This company does annual business with the Soviet Union worth between \$1 million and \$2 million.

## India shows West the way in DP training

**EDUCATION** and training for careers in the computer industry, is just as much a need and a problem in India as anywhere else. But while Western companies are all too willing to "sit back" and complain that somebody else should do something about the problem, Indian companies are refreshingly willing to go out and do something about it themselves.

Tata Consultancy Services, India's biggest services company, is establishing a programming school, and Computronics is preparing to found the Computronics Institute for Computer Science. To be established in New Delhi, it should open its doors in about six months' time. If all goes well, taking an initial 40 students and building up to about 100. Courses will run for between six months and two years, and the aim will be to turn out top calibre computer scientists.

"We hope to get some

government support once we have got it established," says Computronics managing director Piyush Singhal. "The way it always works here, the government is not prepared to back ventures of this kind until they have been proven viable and useful."

An example of this is the Tata Institute's "Tata Fundamentals Research in Bombay. Founded in the early fifties by the Tata conglomerate, it is primarily government-funded and has gained a world reputation for excellence.

In the computer field, its regarded work has been there on linguistics and synthesis, and the Institute has its own computer, running between 1980 and 1981. Its indigenous minicomputer, TDC-12 was developed in 1978 and has since spawned TDC-312 and TDC-316, similar to the Digital Equipment Corporation's PDP-11 and to early PDP-11 family.

## INDIAN SCENE

# First commercial bureau is based on own country's kit

**THE** first commercial computer bureau in India's southernmost state, Kerala, opened its doors for business in February.

Kerala is one of the poorest and most populous states in India, and the fact that businessmen believe that they can make a commercial success of a computer services operation there underlines the transformation which is taking place in the Indian computer market.

Another aspect of the transformation is that the bureau is equipped with a new Indian small business computer made by a company with the unlikely-sounding name of Delhi Cloth Mills, DCM.

Best-known for its textiles, DCM's range of activities is comparable in scope to those of the other giant Indian industrial and trading houses like Tata and Birla. It was founded in 1889 and is the fourth biggest conglomerate in India.

It has an annual turnover of some 550 crores of Rupees (2310 million) and its interests include sugar, rayon fibre for tyres, foundries, chemicals, oil, fertilisers, breweries, sewing machines, refrigerators, fans and oil.

DCM has had a licence to develop and manufacture minicomputers for about eight years (CW, July 11, 1974) and design work on the product, called the Galaxy 11, began in 1975. It was launched in 1978 and over 40 have been sold.

It is a 16-bit TTL processor, apparently not microprocessor based. It comes with up to 64K bytes of main memory, up to eight Memorex floppy disc drives, up to 16 locally-built VDUs and two disc drives will be supported.

DCM plans to offer 35 and 70 megabyte drives. The printer runs at 750 lpm, and is assembled by DCM from Centronics mechanisms.

DCM does use the Intel 8086 microprocessor in other products. These include a Spectrum line of microcomputers and a data entry system called Daten 3, which is an off-line key-to-floppy disc data entry and verification station.

Both the Daten 3 and the Galaxy 11 use a large-character strip display for operator guidance.

Most Indian cities have a major road named after Mahatma Gandhi; despite the intention to honour the great man, every Indian invariably calls it MG Road, and the inhabitants of Ernakulam, the business centre of the southern port of Cochin are no exception.

Kerala's first computer bureau Cams, Computerised Accounting and Management Services, is on MG Road and Pallath Surendran is the managing director.

"My background is that of a cost and works accountant," he says. "I worked for a government undertaking, Travancore Ltd and my only contact with a computer there was as a user." Needless to say it was an IBM 1401, which are ubiquitous in India to this day.

"I have had it in mind to start a computer services company for about 10 years. Cams is a private company with 35 shareholders, and seven employees at present. Our shareholders include five chartered accountants and cost accountants and I am quite confident that we will be successful."

"The Galaxy 11 cost \$27,000, and the three Daten 3 data entry systems cost \$3,400 each. We have to do about \$2,800 of business a month to break even, but we have signed our first two customers already."

"We did not really have much choice of computer. We were limited to microcomputers from Hindustan Computers or ECIL, or the DCM mini. Hindustan Computers builds a business system around the Rockwell PPS-8 microprocessor (CW, February 7) and ECIL builds an 8080-based microcomputer and the TDC-316 and TDC-312 minicomputers.

Hindustan Computers was a company formed by former employees of DCM, and was initially backed by the Uttar Pradesh State Electronics Development Corp as a "joint sector" company, but has since severed its ties and is now wholly private. ECIL, Electronics Corporation of India Ltd is a public sector company based in Hyderabad.

"We wanted to buy from a private company, because we expected to get better service."

Despite the fact that Cams has

the first Galaxy 11 in Cochin, DCM is stationing a service engineer in the city and opening an office.

"We will primarily be serving customers in the Cochin-Ernakulam area, but we will seek business within a 40 to 50 mile radius," says Surendran.

"Customers will send their work to us by train using their own messengers, and we will return it to them using our messengers to give them the fastest possible turn-round time."

## Report by Tim Palmer

# IBM trained man leads in technical expertise

**THE** technical expertise at Computerised Accounting and Management Services resides with Ambat Radhakrishnan.

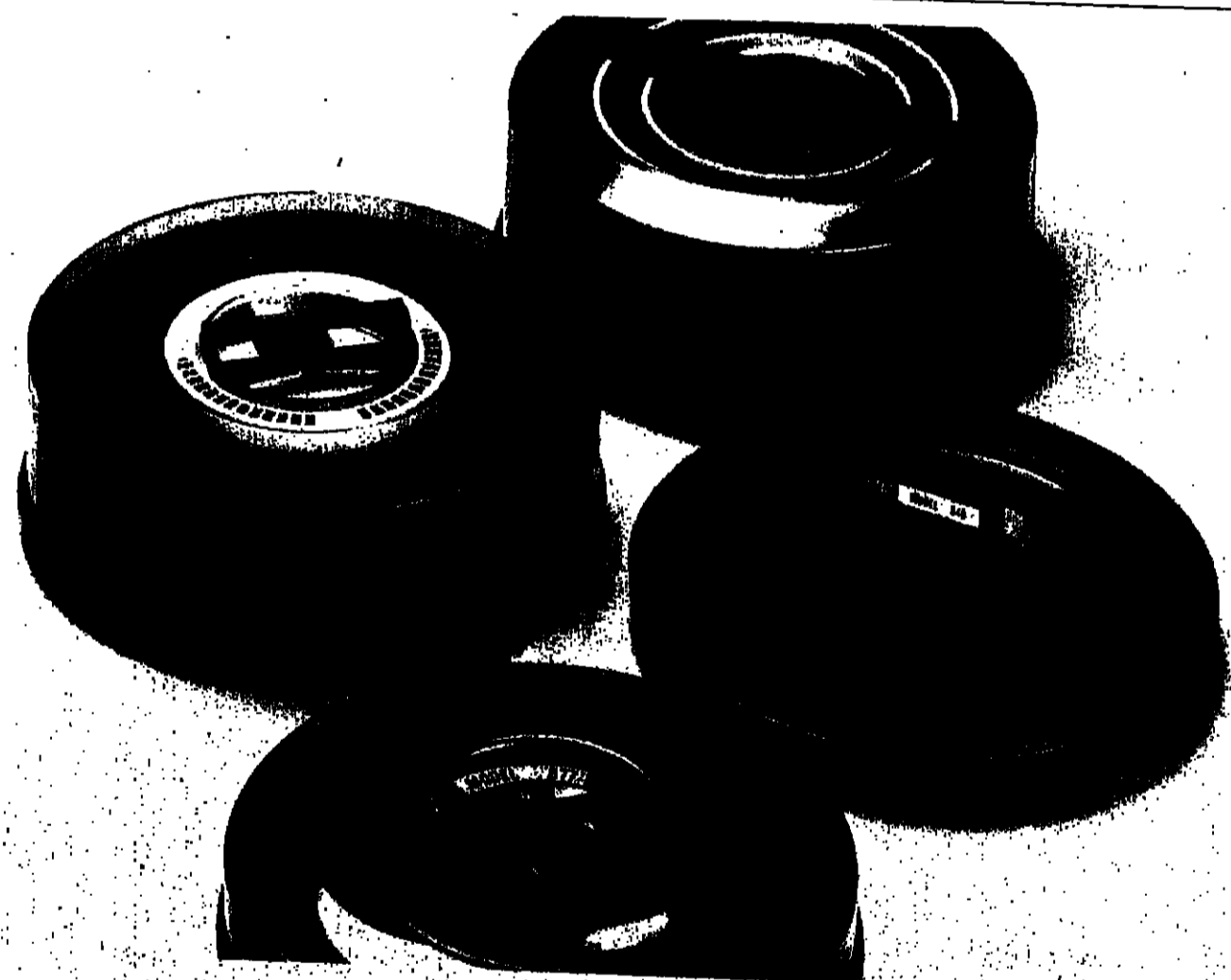
"I was trained by IBM 15 years ago," he says. "I spent seven years with Electronics Corporation of India, and have experience on both IBM 1401 and the ECIL TDC machines. I worked at the Cochin shipyard, which has a 1401 and a TDC-312." The TDC-312 is a third generation mini developed in India and similar to the 12-bit Digital Equipment PDP-8.

"Our first two customers are a bank wanting an inter-branch reconciliation system, which will take us about one month to write, and a firm of tea auctioneers which wants an invoicing system."

"We will write all our own applications software according to what our customers want."

DCM is helping us with programming and development work. The operating system, one language and utilities come with the computer, but there is no application software.

"The machine operates in both interactive and batch mode, but we shall be using it interactively. The only language at present available is RPG-II, but a version of Basic called G-Basic will be available shortly."



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An early picture showing Delhi Cloth Mills in much better known for its textile than for computers. As well as building the Galaxy 11 mini and the mini 8080-based data entry systems and microcomputers, it has also taken on the agency for Hindustan and ECIL, within its manufacturing.

KEITH JONES TALKS TO TWO LEADING AS CUSTOMERS ABOUT THE AFTERMATH OF THE ITEL COLLAPSE

# Why National users are now taking an independent line

BRIAN CROWE and Donald Stott are two of the leading lights in the small but growing Independent Computer Users' Association, the group that represents the interests of users of the IBM compatible Advanced System mainframes sold by National Advanced Systems.

National Advanced Systems is the wholly-owned subsidiary of National Semiconductor and took over the marketing of the Advanced System range in 1979, including the big machines built in Japan by Hitachi — last year from ITEL after ITEL had run into dire financial straits.

Discussing the subject of National's sales performance with Advanced System machines since it took over from ITEL, Brian Crowe of Insurance broker Frizzell, pointed out, "As a user group we ask National from time to time about their UK orders to see how they are doing and to make sure they are not going out of business. Sales have picked up here since the days of the ITEL crash, but National's AS business in the UK is still slow compared with other countries in Europe."

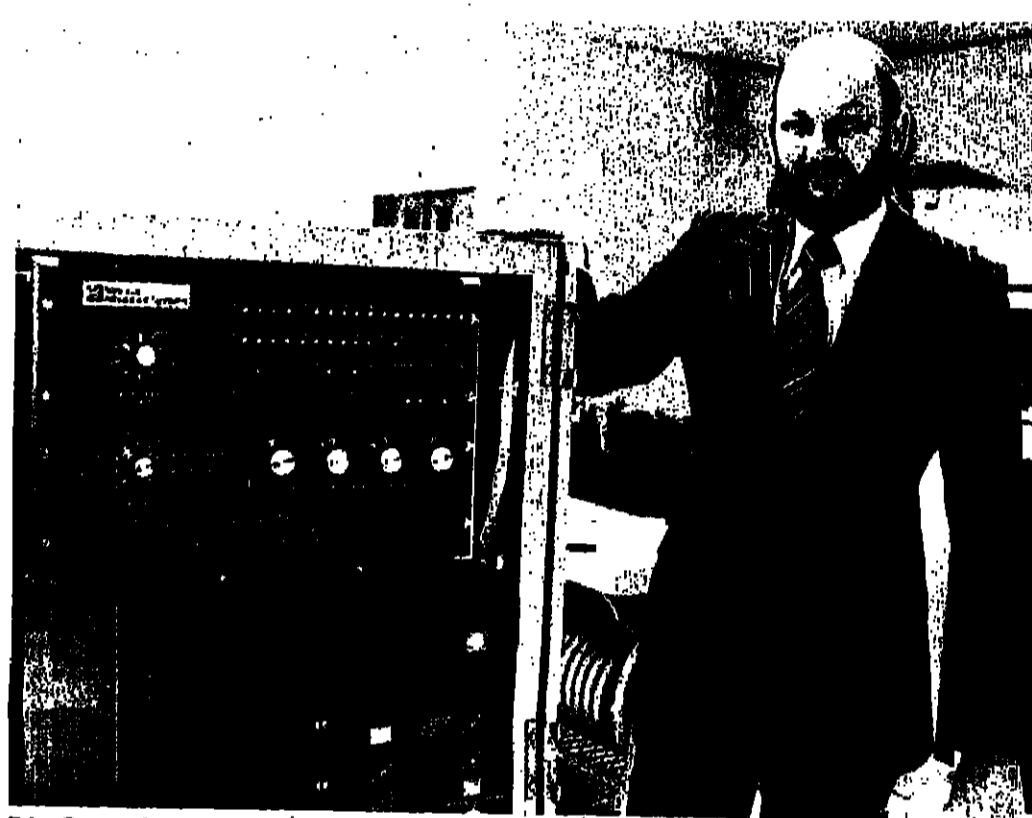
More reassuring, Donald Stott said that the investment analysts at his own company, the Co-operative Insurance Society, had looked at ITEL at the time that the Society bought its Hitachi machine from ITEL, and at National after it took over ITEL's AS marketing operation. According to Stott their report on National inspired more confidence than what they had said about ITEL.

Stott remarked, "The National chairman, Charlie Spork, gave me the impression when I met him that National is a sober company that is not going to do anything rash."

The smaller AS machines, which are built by National itself and which were renamed the AS/3000 and AS/5000 earlier this year, are regarded now as being somewhat behind the IBM 4300 series in technology and also behind some other plug-compatible machines like the Magnuson M80 family and the machines built by IPL.

The view of both Crowe and Stott was that the technology inside the box was irrelevant as long as it did the work required, although both admitted that technology was significant if it affected the cost of the machine. Asked how much AS users know about National's development efforts to catch up with the 4300 series, Crowe commented, "National is not talking much about new developments," and he added that it was National's responsibility and National's problem to catch up with IBM. It was not a problem for users because users could always go back to IBM or change to another PCM, plug-compatible manufacturer, if National failed.

For the customer primarily interested in expanding his operation, National will provide a growth path in the form of the AS/7000 machines built by Hitachi.



Brian Crowe, data processing manager of the Frizzell group, and chairman of the Independent Computer Users' Group, pictured with his AS/5000. "Sales have picked up here since the days of the ITEL crash, but National's AS business in the UK is still slow compared with other countries in Europe," he says.

and we would like National to be more specific about that growth path." The 7000 DPC is the dual processor version of the AS/7000.

Following the interview with Crowe and Stott it was reported that the "Lightning" large-scale processor development project had been scrapped by National.

**It is National's responsibility and National's problem to catch up with IBM. It is not a problem for users, because users could always go back to IBM or change to another PCM, if National failed.**

In the US, so it looks as though National may continue to rely totally on Hitachi as its source of big IBM compatible machines.

National's position in the European market with the Hitachi machines could be affected by the deal signed by Hitachi with Olivetti early this year (CW, January 31). But Stott, as one of just three UK all supported by National, is not worried by the possibility of machines being actively marketed in the UK.

Stott raves about the quality of Hitachi's air cooled machines. "The quality of the Hitachi computers has not been the only reason we have installed the AS/7000 last year, some people from Hitachi in Japan visited us in Manchester and gave us

brochures detailing the quality control they employ. The range of temperature testing was fantastic. IBM are not in the same league."

Stott also pointed out that his own conversion job from the non-virtual operating system, MFT, to MVS last year was helped enormously by the fact that MFT can run on an AS/7000 (AS/8) in native mode. MFT could only have run on a 3032 under VM, of which the Co-operative Insurance had no experience, and special software would have been needed to provide the necessary error messages. The software would have been a reworking of some US error message software developed in the US for running MFT on the 3032. IBM UK offered to carry out the reworking for the Co-op Insurance on a PRP basis.

According to Stott, the MFT to MVS conversion proceeded very smoothly over about four months, never occupying more than two people and requiring only a little help from National's own systems support staff.

Turning to the role of the Independent Computer Users' Association, the AS user group, Brian Crowe, the current chairman, explained that the name Independent had been substituted for the name ITEL after the National takeover, partly to keep the same initials but also to enable users of other plug-compatible machines to join the group. He emphasised that the articles of the association did not allow in any way to link up with any other machine, but one obvious possibility.

As far as geographical inter-linking is concerned, Crowe maintains links with the AS user group in the US and the Co-operative Insurance Society is a member of both ICUA and

Press reports last year about ITEL's spectacular financial collapse and hurried exit from the computer business as well have given the impression that users of ITEL Advanced Systems were in real trouble — that they had been left with the lurch with no support for their IBM compatible systems.

The reality was a lot different. Most of the ITEL staff stayed on and it appears that most AS users had noticed the difference last September when National Semiconductor took over ITEL's AS sales and support operation and set up a wholly-owned subsidiary, National Advanced Systems, to run the business. In fact, many users were pleased that the firm that had built their machines had started to support them directly.

Keith Jones talked to two leading AS users, Brian Crowe of insurance brokers Frizzell, and Donald Stott, data processing manager of the Co-operative Insurance Society. The latter was the first UK organisation to install one of the large-scale IBM compatible machines built in Japan by Hitachi and now sold by National as the AS/7000.

Donald Stott was the first chairman of the AS user group, originally called the ITEL Computer Users' Association, which was renamed the Independent Computer Users' Association after the National takeover and Brian Crowe, current chairman, explains here the aims and activities of the ICUA and why the name "Independent" was chosen.

members have belonged to or still belong to the IBM Association and Stott, who was the first chairman of ICUA, was also one of the original members of the IBM group in the early Sixties. He feels that the ICUA these days has the same sort of informal atmosphere that the IBM CUA had then.

Both the Co-op Insurance and Frizzell had to relinquish their IBM CUA membership when they replaced their IBM CPUs with AS machines, and Guide, the IBM-sponsored user group, is even more strict about excluding PCM users. However, some PCM users including National's customers can still belong to the IBM CUA and Guide if they continue to possess one or more IBM CPUs in addition to their PCM machines.

Stott's personal view is that Guide and the IBM CUA should accept the use of an IBM operating system as the qualification for membership whether or not the user runs it on an IBM processor. He pointed out that some IBM CUA members felt strongly that PCM users should be allowed to remain in the IBM association.

Crowe and Stott both emphasise the complete freedom from interference by National that the ICUA enjoys. Crowe said, "At our meetings we can discuss topics like other manufacturers' plug compatible equipment completely freely."



Donald Stott, data processing manager of the Co-operative Insurance Society, is a member of both ICUA and National. He says that his company's investment analysts' report on National inspired more confidence than what they had said about ITEL.

## ADVANCED FILE DESIGN — Part 12

by Owen Hanson and Norman Revell

# Designing for the online environment

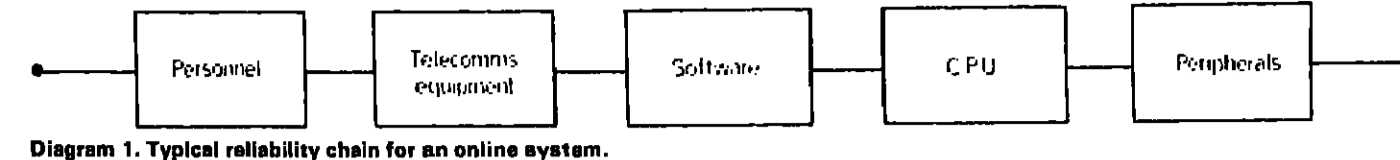


Diagram 1. Typical reliability chain for an online system.

IN Parts 12 and 13 we shall examine some of the practical factors which need to be considered when designing a file system in an online environment.

There are two fundamental design parameters for any online system, 1 the availability and 2 the response time. Thus we may say that a given system has to provide a mean response time of two seconds or less and an availability of 99% for example, in order to be acceptable to its users. These design parameters need to be translated into a design involving the files, programs, terminal equipment and so on, that the system will use.

Though we shall be mainly concerned with the file system, the techniques that will be covered can be extended to other aspects of online system design. In this part we shall concentrate on the availability factor.

What is meant by system availability? The availability of any technological system  $\alpha$  is

defined by the following ratio of mean time to fail and mean time to repair.

$$\alpha = \frac{\text{MTF}}{\text{MTF} + \text{MTR}}$$

Thus if the mean time to fail of a disc unit were 1,000 hours of use, and the mean time to repair were five hours, the availability of the unit would be

$$\alpha = \frac{1,000}{1,005} = 0.995 \text{ or } 99.5\%$$

Calculation of the MTF and MTR may be carried out in practice by observation and measurement, though of course if new equipment is being considered it is necessary to obtain figures direct from the manufacturer. This is often easier said than done, since manufacturers are reluctant to reveal these figures.

An important aspect to consider in calculating the MTR is any waiting time spent until an

engineer actually arrives on site to repair the equipment. Even if it only takes 10 minutes to change a defective circuit board, if the engineer takes two hours to arrive then the MTR is 120 minutes. This illustrates one of the benefits of a resident engineer if the installation is large enough to justify one.

In considering the application of reliability factors to the design of an online system, the old principle that "A chain is only as strong as its weakest link" applies. An online system may be viewed as a chain of subsystems each of which must be working for the total system to function correctly, and the elements in a typical system are shown in Figure 1.

Suppose now that we have a system of just two elements whose availabilities  $\alpha_1$  and  $\alpha_2$  are known, see Figure 2. From the rules of probability the availability of the system  $A = \alpha_1 \times \alpha_2$ . Thus if each element had an availability of 90% say, then the system availability would be 81%. In order to make the system more reliable it is necessary to duplicate the weaker parts of it.

If a duplicate element is provided then the probability of either element not being available is  $(1-\alpha)^2$  and the probability of neither being available is  $(1-\alpha)^2$ , thus the duplexed availability is  $1 - (1-\alpha)^2 = \alpha(2-\alpha)$ .

For example if we duplex a system element whose availability is 90% then the duplexed availability becomes  $0.9(2-0.9) = 0.89$ . This is shown in Figure 3 where the normal convention of showing duplicated elements in parallel is illustrated.

As a further illustration, if we were to duplex both elements of the first example the total system availability becomes 98.01%. This is shown in Figure 4. Using these two basic building blocks of series and parallel connections, the reliability network for complex configurations can be drawn up and total availabilities calculated.

When designing the files subsystem for an online system the same principle applies. For example, suppose we had two banks of four disc drives, and each bank were connected to the CPU via a fully switchable channel and control unit. Further let us suppose that the files to be referenced occupy a whole bank of drives and that

the application requires all of these files to be available. Using the availabilities shown in Figure 5 a total disc subsystem availability is derived.

In this example the fourth power of  $\alpha_d$  makes the disc bank the weak link of the system. In practice therefore it is important to design the files so that a "graceful degradation" is possible, and not have the rather stringent requirement that all of the disc drives should need to be available for the system to function.

If the master files were spread over the discs in such a way that only part of the system were lost, and it were possible to continue processing after a single disc failure, and also if all the drives were made switchable between both control units, then the system would be much more resilient.

A basic design question which needs to be answered is, "Which element is it best to duplex?" Using the formula previously derived, the improvement in reliability obtained by duplexing is given by  $(2-\alpha)$  thus an element whose availability is 90% would improve overall system availability by  $(2-0.9)$  or 10% if it were duplexed.

As would be expected the biggest gain is to be derived by duplexing the weakest link, but this is not the complete picture. An important item to consider is cost. When working out the improvements, it is possible to define the "best buy option" by dividing the cost of each element by the percentage improvement in system availability obtained through duplexing.

For example a disc controller costing £10,000 and having availability of 99% would provide a 1% improvement in system availability at a cost of £10,000, whereas a disc drive having a reliability of 90% at a cost of £3,000, say, would provide an improvement of 10% at a cost percent of £300.

A further factor which should be considered as part of the cost

is the degree of redundancy. If the element duplicated is being used perhaps for some other application, then an allowance should be made for this when costing the effect of duplexing.

This same principle can, of course, be applied to triplexing or even quadruplexing vital elements in a configuration, though the benefits are likely to be very marginal for most commercial systems.

For a unit which is triplexed the availability is  $1 - (1-\alpha)^3$  which for  $\alpha = 90\%$  gives an availability of 99.9% (as opposed to 99% for duplexing).

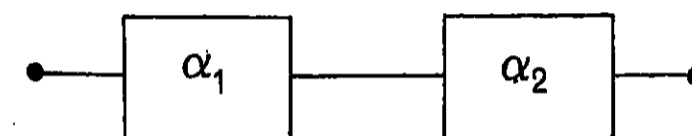
In making a choice of file organisation for an online system reliability theory calculations can be applied to such factors as partitioning of master files, using a separate disc of indices, etc.

A practical point worth noting is that with current technology, disc controllers and channels will normally be very much more reliable than the drive units which have moving parts,

and thus should not be a major factor in the design calculations of reliability. In fact for many mini and micro systems these components are integral with the CPU.

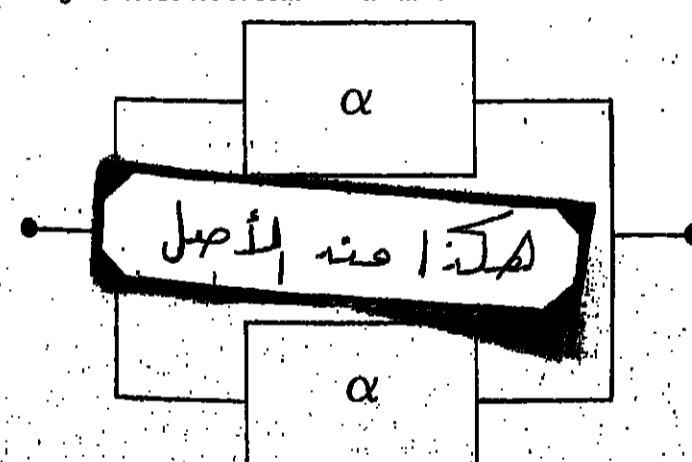
Another significant factor to be considered is software reliability — something which is not normally duplexed though the availability factor could be measured in just the same way that hardware reliability is measured.

To summarise, therefore, we have seen how reliability calculations can influence the file hardware configuration and organisation of the files in an online system. There is nothing to prevent the same techniques being used for a batch system where a requirement for high availability exists — it is just that much higher MTRs can normally be tolerated in batch systems. In Part 13 we shall examine how simple queueing theory may be applied to file processing in an online environment.



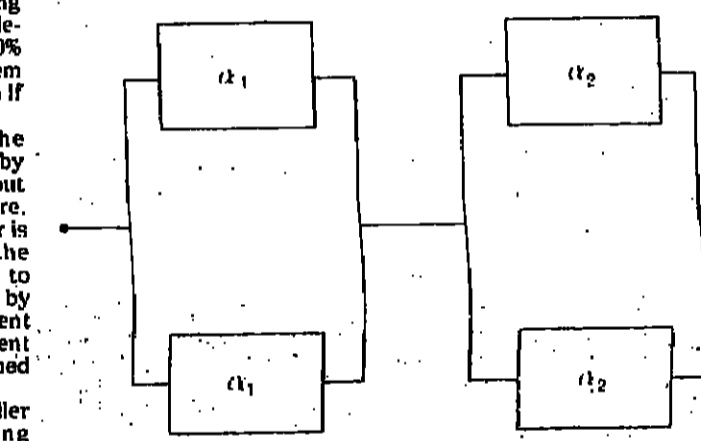
Total availability  
 $A = \alpha_1 \times \alpha_2$   
 $= \alpha_1 \alpha_2$

Diagram 2. A series of connection units.



Availability  
 $A = \alpha(2-\alpha)$

Diagram 3. A parallel (duplexed) connection of units.



$$A = \alpha_1 \alpha_2 (2 - \alpha_1)(2 - \alpha_2)$$

Diagram 4. A system of two elements with duplexing.

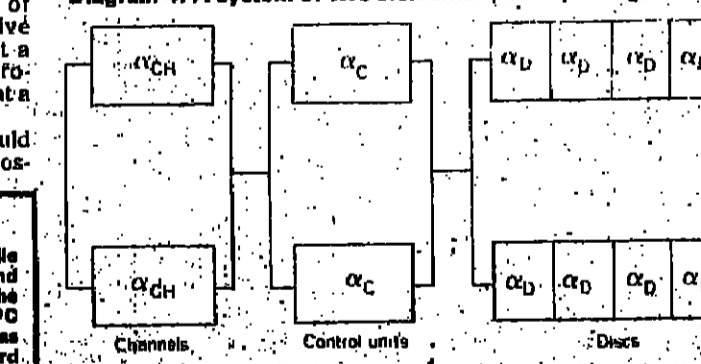


Diagram 5. A typical disc file subsystem.

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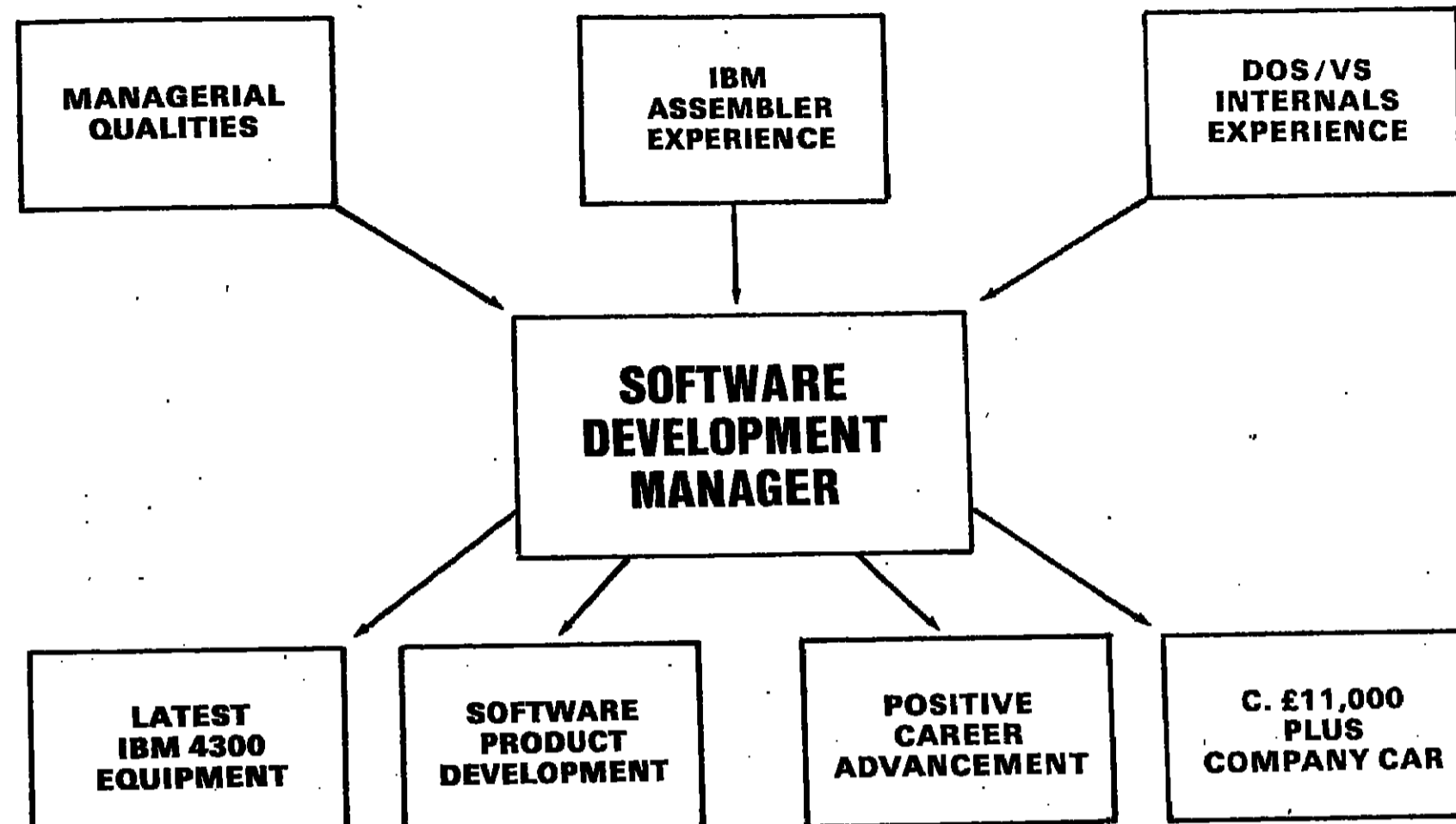
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- ☐ Produce distribution and marketing
- ☐ Marine scheduling and optimisation
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- ☐ Analysis of produce quality and source
- ☐ Profitability analysis
- ☐ Financial analysis/budgetary control

To meet the growing needs of the group, the central computer is being replaced by an IBM 4300. Additionally, most of the remote locations require their own computing power, with communications links to the head office machine.

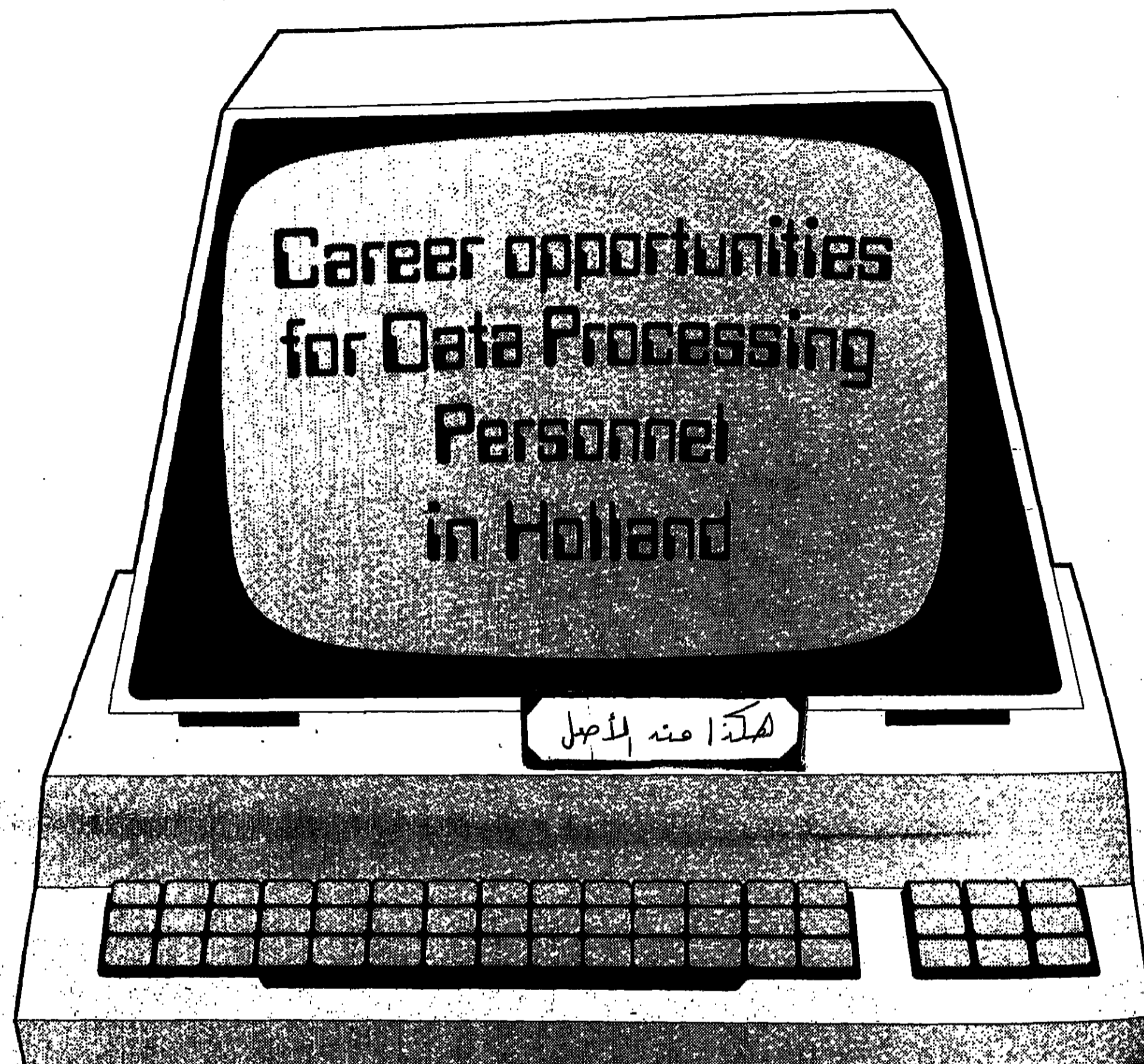
We require a Project Manager who will be responsible for the design and implementation of these systems. Three years solid analysis experience, with a programming background, are essential requirements. The position is most likely to attract those currently earning £7,000—£9,000 who have a desire to work for a company committed to extensive computerisation.

For further information, and to arrange interviews, please telephone or write to The Data Processing Manager

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## Special Editorial Feature – July 24 Issue

COMPUTER WEEKLY — Britain's largest circulated computer publication — will publish a special editorial feature in the July 24 issue designed to outline the career opportunities for fully qualified and experienced data processing personnel in HOLLAND's expanding computer industry.

The current international shortage of data processing staff is likely to remain a problem for the foreseeable future becoming increasingly acute with the growth of computer installations. The prime objective of this feature will be to create a greater awareness amongst readers of COMPUTER WEEKLY of the scope and job opportunities available in Holland.

COMPUTER WEEKLY has an average circulation of 91,656 (ABC July-Dec 1979) the largest of any other computer publication in the UK. Readership extends to all sections of the industry particularly amongst Data Processing Managers, Systems Analysts, Computer Programmers, Operations Staff and Sales Representatives.

If you are currently looking for permanent or contract staff why not take advantage of this special feature and advertise your requirements to the U.K. market place through COMPUTER WEEKLY. A special section titled, "Career opportunities in Holland" will be included in the issue drawing attention to your announcement.

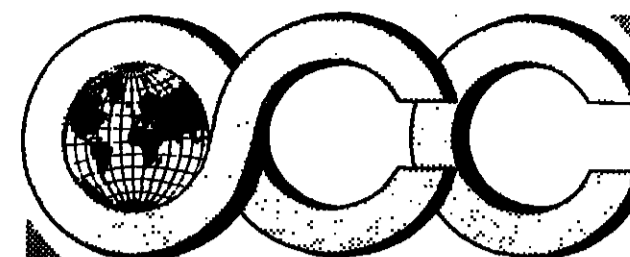
Advertisements can be accepted up until July 18 although advanced space reservations are advisable. Rates are based on £16 per single column centimetre. COMPUTER WEEKLY is printed with process therefore no blocks are required. There are seven columns to each page measuring 39cms long, 1 col width = 39mm, 2 = 82mm, 3 = 125mm, 4 = 168mm, 5 = 211mm, 6 = 254mm, 7 = 296mm.

Should you require any further details or would like to see a copy of COMPUTER WEEKLY contact our recruitment advertisement division today.

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## Systems Analysts Mk. IV Programmer and Analyst Programmers Salary range £11K-£16K after tax, client interviews 13th and 14th July

A major client of ours operating in the Eastern Province of Saudi Arabia has a number of vacancies in their E.D.P. Dept. The company has large IBM equipment installed and candidates should be familiar with both IBM hardware and software. You will ideally be educated to degree standard and have a number of years' experience in the position you apply for.

### Systems Analysts — Commercial and Industrial

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### Business Analyst Programmers

Five Analyst/Programmers are also required and you should have three or more years' experience programming in PL/1 and/or COBOL. You should also have worked on Database and T.P. Systems concerned with business applications.

To find out more or make an application, please telephone Mike Mead on 01-242 9356 (days) or 01-807 7428 (evenings/weekends). Unfortunately time does not allow for written applications to be considered.

### Mk. IV Programmer—for loss analysis

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### UMIST

Applications are invited from candidates of either sex for the following post which will support the research activities of the recently appointed Professor of Applied Control Engineering:

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Ref: CSC/114/CJ. This post will be concerned with the development and deployment of equipment for research in the areas of adaptive control, intelligent control systems, pattern recognition and allied topics which may require high degree of real time and micro-computing technology.

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Ref: CSC/115/CJ. This post will be concerned with the development of a computer-aided control systems design facility.

Salary will be on the scale £4402-£5052 per annum.

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Requests for application forms and further particulars, quoting the appropriate reference, should be addressed to the Registrar, Room 05, UMIST, PO Box 88, Manchester M60 1QP. The closing date is 31st July, 1980.

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Our client is also looking for a willingness to travel and work on site as these positions offer the scope for some travel both UK and overseas. The organisation is small but growing and career development prospects for talented individuals are outstanding. For further details please contact Eddie Howard.

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5 Brighton Road, Surbiton, Surrey, England. Tel - 01 399 9183

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The High Commission possesses an IBM 370/138 operating under Power/Dec/VSE. Programming is in COBOL. Currently systems are developed in batch mode, however new developments indicate that we may soon be able to consider on-line applications using CICS.

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**GRADUATES** with a minimum degree in computer science or similar subject who wish to join a software development team, with an International Computer Manufacturing Company, are invited to submit their curriculum vitae for consideration. An outline of source material studied will assist in our evaluations.

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Ring Ray Kelly for further details on 01-261 8018.

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This is a major role in the system with overall responsibility for the design and development of the system. The successful candidate will have a degree in Maths/Computer Science. Knowledge of ASSEMBLY level languages and the ability to translate engineers' requirements into software form.

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These are just a few of the vacancies we have. If you wish to apply for any of the above positions, please send us your full CV, or phone for an application form.

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Ideally with at least 3 years' IBM mainframe operating experience and a knowledge of DOS/VS (E) on an IBM 370 with a working knowledge of JCL.

Duties will include the provision of a comprehensive support function for development and users of the IBM 4331 and implementation of in-house European operating standards and procedures.

## COMPUTER PROGRAMMER

Applicants must have at least 2 years' experience of COBOL and CICS on IBM mainframes, and the ability to specify and code computer programmes for specified systems in particular on-line interactive programmes.

These are new positions within our rapidly expanding Computer department that will shortly install an IBM 4331.

We offer excellent salaries plus the usual benefits associated with a major group including private medical care and relocation expenses, where necessary.

For further information applicants, male/female, should apply in writing enclosing details of career to date, or telephone:

George Vale, Personnel Manager  
Philip Morris Limited, Great West House  
Great West Road Brentford, Middx.  
Tel: 01-898 4181

Philip Morris

## WYRE FOREST DISTRICT COUNCIL

Directorate of Finance

## SYSTEMS ANALYST/PROGRAMMERS

(Two)

Salary 80,1/2 - £6638-£7722

(Pay related dual 1.7.80)

Two systems analyst/programmers are required to accelerate development on the council's recently installed C.M.C. Reilly C.M.C. 8200 computer system at its finance department in Kidderminster. Although responsible to the Systems and Programming Manager there will be ample opportunity to display initiative in the development of particular systems and these are ideal openings for individuals wishing to take an important role in the setting up of a new system.

Comprehensive computer service. The main programming language in use is Data Basic and, although knowledge of (its language is not essential) applicants should have a minimum of two years' analysis and programming experience. The district is situated in North Worcestershire, close to the motorway system and Birmingham and Worcester and contains many areas of considerable natural beauty. It serves a population of 93,000 and comprises the towns of Kidderminster, Stourport-on-Severn and Bewdley.

The council offers a generous scheme of financial assistance including reimbursement of removal expenses, all legal expenses arising from house sale and purchase. Temporary housing accommodation in private facilities may be available. Council car allowance payable.

If you are interested and wish to discuss the appointment informally, please telephone (Mr. Wright), Systems and Programming Manager at Kidderminster (0592) 86351 Ext. 10. Further particulars and application forms may be obtained by writing to: Mr. Wright, Personnel Officer, Civils Centre, Stourport-on-Severn Works, Tel: Stourport 2721. Ext: 22. Interviews will be held on Monday, July 28, 1980.

## THE SALES BIT

# Overcoming age prejudice

AS I am sure most readers have known for a long time, I work for a company called Sales and Marketing Recruiters. This brings me into regular contact with salesmen of all types and levels of experience, and my job is to both guide them in career terms (as opposed to shoving them into jobs) and seek out the right kind of job opportunity for the maximisation of their potential.

One of the problems I am often confronted with is the client's reluctance to consider salesmen above the age of forty.

There is without any doubt a prejudice on the part of many sales managers against salesmen who have achieved middle age. (Whatever that might be) Where it stems from I don't know, other than stupidity, lack of experience or personal insecurity.

Let us consider the situation from a broad standpoint. There is no age group which has a monopoly on lazy sods. In general terms the individual either has or has not industry, self-motivation, enthusiasm, commonsense, initiative, etc. from the cradle to the grave. The "Old bull" syndrome is very pertinent to the selling arena. (Surely you know that one! In essence — "Young bull to old bull: 'Let's run down the hill and screw one of those cows.' Old bull to young bull: 'No. Let's walk down and screw them all!'")

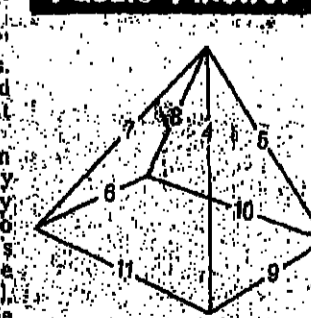
The typical salesman starts his sales career around the age of 25. Assuming a retirement age of 65, he is only half-way through his career at 45! It is apparently quite acceptable for a sales manager to be middle-aged, but of course most salesmen never make it that far. I would guess the chances are not better than one in six, so what do these people with such prejudice imagine happens to the other five? It seems they have achieved premature sales senility at the point popular belief tells us is the stage at which the individual is most able to exploit his or her life experience.

Life begins at forty; that old song proclaims. Some sales managers would rather have us believe that it is the end of the road. Age is very much an emotive topic with heavy subjective overtones. Any ninety-year-old will refer to their offspring as youngsters. Age, from the standpoint of the individual, is relative. Youth could be described as ten years younger than whatever age you happen to be at the time.

I am glad to say that very few of my company's clients are prejudiced against any particular age group. Hopefully, we have made some contribution towards broadening their outlook in this context. However, there are some basic ground rules that we apply.

Our basic guideline is that if a salesman has the

## Puzzle Answer



BEAR in mind that there are five vertices, and also that each integer serves two vertices. So "twice the sum of the eight integers" must be divisible by 2. This narrows down the possibilities very considerably, with 11 = 60 and 9 = 100 as the lowest two valid sets of eight.

The first of these does in fact give the only possible solution, with a constant of 11.

